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18. Approval Designator [E, S, C, D or N/A]
(see WHC-CM-3-5, Sec. 12.7)

19. Design Authority

20. Design Agent

21. DOE APPROVAL (if required)

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<th>(J) Name</th>
<th>(K) Signature</th>
<th>(L) Date</th>
<th>(M) MSIN</th>
<th>(G) Reason</th>
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<td>2</td>
<td>Cog. Eng. F.H. Steen</td>
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<tr>
<td>2</td>
<td>Cog. Mgr. G.B. Griffin</td>
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<td>QA T.L. Tung</td>
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17. SIGNATURE/DISTRIBUTION

18. A.E. Young

19. N/A

20. G.B. Griffin

21. [ ] Approved

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Tank 241-A-101, Cores 154 and 156 Analytical Results for the 45 Day Report

Fran H. Steen
Rust Federal Services of Hanford, Inc., Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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A-6400-073 (10/95) GEF321
TANK 241-A-101, CORES 154 AND 156
ANALYTICAL RESULTS FOR THE 45 DAY REPORT

Project Coordinator: FRANCISKA H. STEEN

Prepared for the U.S. Department of Energy
Office of Environmental Restoration
and Waste Management

by

222-S Laboratory
Westinghouse Hanford Company
Box 1970
Richland, Washington
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NARRATIVE
THIS PAGE WAS INTENTIONALLY LEFT BLANK
This document is the 45-day laboratory report for tank 241-A-101 push mode core segments collected between July 11, 1996 and July 25, 1996. The segments were subsampled and analyzed in accordance with the *Tank 241-A-101 Push Mode Core Sampling and Analysis Plan* (TSAP) (Field, 1996) and the *Safety Screening Data Quality Objective* (DQO) (Dukelow, et al., 1995). The analytical results are included in the data summary table (Table 1).

None of the samples submitted for Total Alpha Activity (AT) or Differential Scanning Calorimetry (DSC) analyses exceeded notification limits as stated in the Safety Screening DQO (Dukelow, et al., 1995). Statistical evaluation on results by calculating the 95% upper confidence limit is not performed by the 222-S Laboratory and is not considered in this report.

Primary safety screening results and the raw data from thermogravimetric analysis (TGA) and DSC analyses are included in this report.

**Appearance and Sample Handling**

Attachment 1 is a cross reference to relate the tank farm identification numbers to the 222-S Laboratory LabCore/LIMS sample numbers. The subsamples generated in the laboratory for analyses are identified in these diagrams with their sources shown. The diagram identifying the hydrostatic head fluid (HHF) blank is also included.

**Core 154**

Nineteen push mode core segments were removed from tank 241-A-101 riser 15 between July 11, 1996 and July 18, 1996. Segments were received by the 222-S Laboratory between July 16, 1996 and August 21, 1996. Table 2 summarizes the extrusion information.

Selected segments (5, 8 and 12) were sampled using the Retained Gas Sampler (RGS) and extruded by the Process Chemistry and Statistical Analysis Group. Segment 19 was originally identified as a RGS sample. However since the integrity of the sample was compromised due to a leaking sampler seal it was extruded as a non-RGS sample. The analytical results for these segments will be included in a revision to this document.
Core 156
Nineteen push mode core segments were removed from tank 241-A-101 riser 24 between July 22, 1996 and July 25, 1996. Segments were received by the 222-S Laboratory between July 23, 1996 and August 19, 1996. Table 3 summarizes the extrusion information.

Selected segments (2, 9, 16 and 19) were sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group. The analytical results for these segments will be included in a revision to this document.

Field Blank
A field blank was provided to the 222-S laboratory with core 154. It underwent the same analysis as the drainable liquid as instructed by the TSAP (Field, 1996).
Table 2. Sample Receipt and Extrusion Information for 241-A-101, Core 154.

<table>
<thead>
<tr>
<th>Customer Id</th>
<th>Segment</th>
<th>Date Sampled</th>
<th>Date Received</th>
<th>Date Extruded</th>
<th>Inches Extruded</th>
<th>Liquid Recovered (g)</th>
<th>Solids Recovered (g)</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-297</td>
<td>1</td>
<td>7/11/96</td>
<td>8/20/96</td>
<td>8/26/96</td>
<td>11</td>
<td>0</td>
<td>80.7 - Upper half 176.0 - Lower half</td>
<td>The solids were yellowish brown in color. The upper five inches resembled a dry salt and the lower six inches resembled a moist salt.</td>
</tr>
<tr>
<td>96-298</td>
<td>2</td>
<td>7/11/96</td>
<td>8/20/96</td>
<td>8/26/96</td>
<td>17</td>
<td>0</td>
<td>186.4 - Upper half 202.5 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-299</td>
<td>3</td>
<td>7/11/96</td>
<td>8/20/96</td>
<td>8/26/96</td>
<td>19</td>
<td>0</td>
<td>222.1 - Upper half 205.4 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-300</td>
<td>4</td>
<td>7/11/96</td>
<td>8/20/96</td>
<td>8/26/96</td>
<td>19</td>
<td>0</td>
<td>225.3 - Upper half 197.9 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-301</td>
<td>5</td>
<td>7/12/96</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group. Extrusion information is not included in this report.</td>
</tr>
<tr>
<td>96-302</td>
<td>6</td>
<td>7/12/96</td>
<td>8/20/96</td>
<td>8/26/96</td>
<td>17</td>
<td>0</td>
<td>207.8 - Upper half 203.4 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-303</td>
<td>7</td>
<td>7/12/96</td>
<td>7/22/96</td>
<td>7/24/96</td>
<td>19</td>
<td>0</td>
<td>197.8 - Upper half 212.7 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-304</td>
<td>8</td>
<td>7/12/96</td>
<td>7/16/96</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group. Extrusion information is not included in this report.</td>
</tr>
<tr>
<td>96-305</td>
<td>9</td>
<td>7/12/96</td>
<td>8/21/96</td>
<td>8/26/96</td>
<td>17</td>
<td>0</td>
<td>161.8 - Upper half 225.5 - Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-306</td>
<td>10</td>
<td>7/12/96</td>
<td>7/22/96</td>
<td>7/24/96</td>
<td>14</td>
<td>0</td>
<td>97.8 - Upper half 158.6 - Lower half</td>
<td>The solids were light gray in color and resembled a salt slurry. Extruded less than 5 ml of yellow opaque liquid. The liquid was subsampled with the solids.</td>
</tr>
<tr>
<td>96-307</td>
<td>11</td>
<td>7/17/96</td>
<td>7/22/96</td>
<td>7/24/96</td>
<td>0</td>
<td>58.1 - Drainable</td>
<td>0</td>
<td>The liquid was colorless and opaque. Collected approximately 60 ml of liquid. No organic layer was observed.</td>
</tr>
<tr>
<td>96-308</td>
<td>12</td>
<td>7/16/96</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analysis Group. Extrusion information is not included in this report.</td>
</tr>
<tr>
<td>Field</td>
<td>Description</td>
<td>Date</td>
<td>Location</td>
<td>Time</td>
<td>Notes</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>The fish was colorless and clear</td>
<td>9/18/17</td>
<td>324</td>
<td>12:00 PM</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>The fish was colorless and clear</td>
<td>9/18/17</td>
<td>324</td>
<td>12:00 PM</td>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>The fish was colorless and clear</td>
<td>9/18/17</td>
<td>324</td>
<td>12:00 PM</td>
<td>0.0</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Sample Receipt and Expiration Information for 241-A101, Core 154.
<table>
<thead>
<tr>
<th>Customer Id</th>
<th>Segment</th>
<th>Date Sampled</th>
<th>Date Received</th>
<th>Date Extruded</th>
<th>Index Extruded</th>
<th>Liquid Recovered (g)</th>
<th>Solids Recovered (g)</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-336</td>
<td>1</td>
<td>7/22/96</td>
<td>8/19/96</td>
<td>8/20/96</td>
<td>1.0</td>
<td>0.0</td>
<td>33.3-Lower half</td>
<td>The solids were green-brown in color and resembled a salt slurry. The liquid was green-brown in color and opaque. The liquid was subsampled with the solids. No organic layer was observed.</td>
</tr>
<tr>
<td>96-337</td>
<td>2</td>
<td>7/22/96</td>
<td>7/23/96</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analyst Group. Extrusion information is not included in this report.</td>
</tr>
<tr>
<td>96-338</td>
<td>3</td>
<td>7/22/96</td>
<td>8/14/96</td>
<td>8/16/96</td>
<td>19.0</td>
<td>0.0</td>
<td>214.4-Upper half 212.3-Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-339</td>
<td>4</td>
<td>7/22/96</td>
<td>8/16/96</td>
<td>8/20/96</td>
<td>18.0</td>
<td>0.0</td>
<td>216.6-Upper half 203.9-Lower half</td>
<td>The solids were gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-340</td>
<td>5</td>
<td>7/22/96</td>
<td>8/14/96</td>
<td>8/16/96</td>
<td>18.0</td>
<td>0.0</td>
<td>196.9-Upper half 211.9-Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-341</td>
<td>6</td>
<td>7/22/96</td>
<td>8/16/96</td>
<td>8/20/96</td>
<td>19.0</td>
<td>0.0</td>
<td>226.3-Upper half 204.2-Lower half</td>
<td>The solids were dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-342</td>
<td>7</td>
<td>7/23/96</td>
<td>8/14/96</td>
<td>8/16/96</td>
<td>16.0</td>
<td>0.0</td>
<td>214.4-Upper half 140.4-Lower half</td>
<td>The solids were light to dark gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-343</td>
<td>8</td>
<td>7/23/96</td>
<td>8/09/96</td>
<td>8/14/96</td>
<td>19.0</td>
<td>0.0</td>
<td>188.9-Upper half 179.9-Lower half</td>
<td>The solids were gray in color and resembled a moist salt.</td>
</tr>
<tr>
<td>96-344</td>
<td>9</td>
<td>7/23/96</td>
<td>7/25/96</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This segment was sampled using the Retained Gas Sampler and extruded by the Process Chemistry and Statistical Analyst Group. Extrusion information is not included in this report.</td>
</tr>
<tr>
<td>96-345</td>
<td>10</td>
<td>7/23/96</td>
<td>8/19/96</td>
<td>8/21/96</td>
<td>7.0</td>
<td>163.9-Drainable</td>
<td>124.2-Upper half 17.9-Lower half</td>
<td>The solids were white to gray in color and resembled a salt slurry. The liquid was yellow in color and opaque. Collected approximately 110 mL of liquid. No organic layer was observed.</td>
</tr>
<tr>
<td>96-346</td>
<td>11</td>
<td>7/23/96</td>
<td>8/09/96</td>
<td>8/14/96</td>
<td>5.0</td>
<td>322.5-Drainable</td>
<td>96.3-Lower half</td>
<td>The solids were white in color and resembled a salt slurry. The liquid was green in color and opaque. Collected approximately 230 mL of liquid. No organic layer was observed.</td>
</tr>
<tr>
<td>96-347</td>
<td>12</td>
<td>7/24/96</td>
<td>8/09/96</td>
<td>8/14/96</td>
<td>2.0</td>
<td>305.9-Drainable</td>
<td>101.4-Lower half</td>
<td>The solids were white in color and resembled a salt slurry. The liquid was green in color and opaque. Collected approximately 230 mL of liquid. No organic layer was observed.</td>
</tr>
<tr>
<td>Step</td>
<td>Description</td>
<td>Sample Description</td>
<td>Source</td>
<td>Extracted Text</td>
<td>Extracted Units</td>
<td>Expected Result</td>
<td>Actual Result</td>
<td>Comments</td>
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<tr>
<td>2</td>
<td>The process starts with the arrival of the final</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>On arrival, the material is transferred to the</td>
<td></td>
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</table>

Table 3. Sample Receipt and Extraction Information for 241-A-101, Core 156.

WHC-SD-WM-0200, REV.0
**Analytical Results Summary**

Table 1 compiles the safety screening analytical results and applicable action limits associated with each subsample submitted.

**Differential Scanning Calorimetry (DSC)**

None of the samples submitted for DSC analysis exceeded notification limits as stated in the Safety Screening DQO (Dukelow, et al., 1995).

The DSC analyses were performed in duplicate on direct subsamples. The exothermic energy based on dry weight of subsample was calculated for all subsamples. The average of the TGA results for each subsample was used in the dry weight correction for that subsample. The standard recovery for this analysis was within the required limits.

The results for fifteen of the fifty-one subsamples were the sum of two or more exotherms. More information may be obtained by examining the raw data. The field blank result was 0.00 Joules/g.

Relative percent differences (RPD) greater than 20% were reported for thirteen of the sixty-two subsamples. The high RPDs can be attributed to the small exotherms and the heterogenous nature of the samples. Selected samples were reanalyzed. The results did not improve the quality control parameters. Thermograms for several samples showed small sharp peaks near 200°C which indicated an inhomogeneous distribution of a pure compound throughout the tank samples.

**Thermogravimetric Analysis (TGA)**

The TGA analyses were performed in duplicate on direct subsamples. The results for tank 241-A-101 were determined by summing the weight loss steps which occurred below 300°C; weight loss steps above this were not used to determine the result. More information may be obtained by examining the raw data.

The field blank resulted in a mean of 99.46% moisture. RPDs greater than 20% were reported for six of the sixty-two subsamples. The high RPDs were due to sample inhomogeneity and selected samples had reruns performed with improved precision. The rerun for sample S96T004702 resulted in an RPD of 41%. The standard recoveries for this analysis were within the required limits.
Density

Bulk density was performed on the solid subsamples as required by the TSAP (Field, 1996). Segments 10 and 11 of core 156 did not yield enough material to perform the bulk density analysis. The results of the bulk density test ranged from 1.31 g/mL to 1.75 g/mL. The highest bulk density of 1.75 g/mL was used to calculate the solid total alpha activity action limit for the tank.

Total alpha results for liquids do not require correction for density. The specific gravity results for the liquid samples will be reported in a revision to this document.

Total Alpha (AT)

The total alpha (AT) analyses were performed in duplicate on direct subsamples for the liquids. Solid subsamples were prepared for analysis by performing a fusion digest in duplicate. The fusion digest is indicated with an "F" in the aliquot class (A#) column in Table I.

All liquid AT results were below the total alpha activity action limit of 61.5 μCi/mL. All solid AT results were below the total alpha activity limit of 35.1 μCi/g (based on a bulk density of 1.75 g/mL). The field blank result was less than the detection limit of 7.82e-5 μCi/mL. A high RPD was reported for seven of the forty-four subsamples submitted for analyses. The sample results were near the detection limit which decreased the precision of the analyses. No rerun was requested due to the low alpha activity in the samples. Low spike recoveries were reported for two samples and was due to matrix interference. No reruns were requested. The standard recoveries for this analysis were within the required limits.
Procedures

Table 4 lists the analytical procedures used for performing the sample analyses. Abbreviations for analyses are defined in the table notes.

Table 4. Analytical Procedures

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Sample Portion</th>
<th>Preparation Procedure</th>
<th>Analysis Procedure</th>
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<tr>
<td>DSC</td>
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<td>LA-514-114, Rev. C-1</td>
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<td>TGA</td>
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<td></td>
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<td>LA-560-112, Rev. B-1</td>
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<td>LA-508-101, Rev. D-2</td>
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Notes:
+ = preparation procedure is for fusion digest on solid
Abbreviations:
N/A = not applicable (these are direct samples)
DSC = differential scanning calorimetry
tGA = thermogravimetric analysis
AT = total alpha activity

References


ATTACHMENT 1

A-101 SAMPLE BREAKDOWN
Attachment 1

A-101
Core: 154
Seg: 1
S96T004486

Upper Half

BULK DENSITY

S96T004663

TIC/TCC
DISC TGA

S96T004691

ARCHIVE

S96T004677

FUSION GEA

S96T004711

ACID DIGEST ICP

S96T004717

H2O DIGEST IC-ANIONS

S96T004723

Lower Half

BULK DENSITY

S96T004656

TIC/TCC
DISC TGA

S96T004689

ARCHIVE

S96T004678

FUSION GEA ALPHA

S96T004705

ACID DIGEST ICP

S96T004707

H2O DIGEST IC-ANIONS

S96T004709
A-101
Core: 154
Seg: 6
S96T004490

Attachment 1

Upper Half
S96T004667

S96T004695
S96T004685

18
S96T004715  S96T004721  S96T004727

Lower Half
S96T004660

S96T004699  S96T004686

S96T004731  S96T004737  S96T004743
A-101
Core: 154
Seg: 7
S96T004005

Attachment 1

Upper Half

S96T004053

S96T004067
S96T004068

Lower Half

S96T004051

S96T004074
S96T004079

S96T004086
S96T004093
S96T004100
A-101
Core: 154
Seg: 17
S96T004471

Attachment 1
Attachment 1

A-101
Core: 156
Seg: 10
S96T004473

Upper Half
Bulk Density
S96T004528

39

TIC/TOC
S96T004546

TIC/TOC
S96T004575

ACE
S96T004609

ACID
S96T004616

H20
S96T004623

FUSION
S96T004628

GEA
S96T004638

ICP
S96T004648

Drainable Liquid
Filter
S96T004530

DSC
S96T004582

TOC
S96T004588

TIC/TOC
S96T004547

DSC
S96T004576

TGA
S96T004547

TGA
S96T004576

ARCHIVE

ARCHIVE

ARCHIVE
A-101
Core: 156
Seg: 18
S96T004066

Attachment 1

Lower
Half
S96T004278

S96T004280
S96T004282

S96T004284
S96T004286
S96T004288

Drainable
Liquid
S96T004276

S96T004290
S96T004292

Fusion
GEA
ALPHA
ICP

Acid
Digest
ICP

H2S
Digest
IC-AIONS

TIC/TOC
DSC
TGA

Archive

TIC/TOC
DSC
TGA

Archive
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**CORE NUMBER:** 154  
**SEGMENT #:** 1  

**SEGMENT PORTION:** U Upper Half of Segment

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<th>RPD %</th>
<th>Spk Rec %</th>
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<td>5.00e-01</td>
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<td>Joules/g</td>
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**L Lower Half of Segment:** L Lower Half of Segment

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<td>Joules/g</td>
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- Limit violated
- Selected Limit

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**Table 1. 45-Day Data Summary Report**

**A-101 (P)**
Table 1. 45-Day Data Summary Report

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<tr>
<td>961004693</td>
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<td>DSC Exotherm using Mettler</td>
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<td>35.90</td>
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<tr>
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<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g</td>
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<td>400.0</td>
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**Upper Half of Segment**

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<th>RPD %</th>
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<td>DSC Exotherm using Mettler</td>
<td>Joules/g</td>
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<td>101.6</td>
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<td>Joules/g</td>
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<td>% Water by TGA on Perkin Elmer</td>
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**Lower Half of Segment**

- Limit violated
- Selected Limit
Table 1: 45-Day Data Summary Report

A-101 (P)

**CORE NUMBER:** 154  
**SEGMENT #:** 3

**SEGMENT PORTION:** U Upper Half of Segment

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**L Lower Half of Segment: L Lower Half of Segment**

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Table 1. 45-Day Data Summary Report

A-101 (P)

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### Table 1: 45-Day Data Summary Report

**A-101 (P)**

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### Table 1. 45-Day Data Summary Report

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Table 1. 45-Day Data Summary Report
A-101 (P)

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### LOWER HALF OF SEGMENT: L LOWER HALF OF SEGMENT

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- => Limit violated
- => Selected Limit
Table 1. 45-Day Data Summary Report
A-101 (P)

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L Lower Half of Segment: L Lower Half of Segment

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- Limit violated
- Selected Limit
Table 1. 45-Day Data Summary Report
A-101 (P)

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- Limit violated
- Selected Limit
### Table 1. 45-Day Data Summary Report

**A-101 (P)**

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**Drainable Liquid: Drainable Liquid**

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- Limit violated
- Selected Limit
### Table 1: 45-Day Data Summary Report

#### Drainable Liquid: Drainable Liquid

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- **=>** Limit violated
- **==** Selected Limit
### Table 1. 45-Day Data Summary Report

**A-101 (P)**

#### CORE NUMBER: 154

**SEGMENT #: 15**

**SEGMENT PORTION: Lower Half of Segment**

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#### Drainable Liquid: Drainable Liquid

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Table 1. 45-Day Data Summary Report
A-101 (P)

CORE NUMBER: 154
SEGMENT #: 16
SEGMENT PORTION: L Lower Half of Segment

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Drainable Liquid: Drainable Liquid

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### Table 1. 45-Day Data Summary Report

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Table 1. 45-Day Data Summary Report
A-101 (P)

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Drainable Liquid: Drainable Liquid

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### Table 1. 45-Day Data Summary Report A-101 (P)

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#### Drivable Liquid: Drivable Liquid

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<td>% Water by TGA using Mettler</td>
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- Limit violated
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- Limit violated
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- Limit violated
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Table 1. 45-Day Data Summary Report
A-101 (P)

CORE NUMBER: 156
SEGMENT #: 3
SEGMENT PORTION: U Upper Half of Segment

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L Lower Half of Segment: L Lower Half of Segment

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- Limit violates
- Selected Limit
## Table 1. 45-Day Data Summary Report

**CORE NUMBER:** 156  
**SEGMENT #:** 4  

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### Segment Portion: L Lower Half of Segment

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=> Limit violated  

Legend: 
- Limit violated  
- Selected Limit
Table 1. 45-Day Data Summary Report
A-101 (P)

CORE NUMBER: 156
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

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Lower Half of Segment: L Lower Half of Segment

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=> Limit violated

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- Limit violated
- Selected Limit
### Table 1. 45-Day Data Summary Report

**A-101 (P)**

**CORE NUMBER:** 156  
**SEGMENT #:** 7

#### SEGMENT PORTION: U Upper Half of Segment

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- Limit violated
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- Limit violated
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Table 1. 45-Day Data Summary Report
A-101 (P)

CORE NUMBER: 156
SEGMENT #: B

SEGMENT PORTION: U Upper Half of Segment

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L Lower Half of Segment: L Lower Half of Segment

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### Table 1. 45-Day Data Summary Report

**A-101 (P)**

**CORE NUMBER:** 156  
**SEGMENT #:** 10

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#### SEGMENT PORTION: L Lower Half of Segment

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#### Drainable Liquid: Drainable Liquid

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**⇒ Limit violated**  
**⇒ Selected Limit**
Table 1. 45-Day Data Summary Report

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Drainable Liquid: Drainable Liquid

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Limit violated
Selected Limit
### Table 1. 45-Day Data Summary Report

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#### Drainable Liquid: Drainable Liquid

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- Limit violated
- Selected Limit
**Table 1. 45-Day Data Summary Report**

**A-101 (P)**

**Segment Portion:** L Lower Half of Segment

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**Drainable Liquid: Drainable Liquid**

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<th>R#</th>
<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S9610004289</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>n/a</td>
<td>0.00e+09</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S9610004289</td>
<td></td>
<td>DSC Exotherm on Perkin Elmer</td>
<td>Joules/g</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>99.39</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S9610004289</td>
<td></td>
<td>% Water by TGA on Perkin Elmer</td>
<td>%</td>
<td>None</td>
<td>None</td>
<td>99.76</td>
<td>47.69</td>
<td>46.98</td>
<td>47.03</td>
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<tr>
<td>S9610004289</td>
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<td>Alpha in Liquid Samples</td>
<td>uCi/mL</td>
<td>-1.0e+03</td>
<td>61.50</td>
<td>95.31</td>
<td>1.10e-02</td>
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**Notes:**
- Limit violated
- Selected Limit

---

**Core Number:** 156

**Segment #:** 13
**Table 1. 45-Day Data Summary Report**

**A-101 (P)**

**CORE NUMBER:** 156  
**SEGMENT #:** 14

**SEGMENT PORTION:** L Lower Half of Segment

### Drivable Liquid: Drivable Liquid

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R #</th>
<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Lower</th>
<th>Upper</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD%</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err%</th>
</tr>
</thead>
<tbody>
<tr>
<td>S961004529</td>
<td></td>
<td>Bulk Density of Sample</td>
<td>g/mL</td>
<td>-1.0e+03</td>
<td>1.580</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>5.00e-01</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S961004550</td>
<td></td>
<td>DSC Exotherm using Mettler</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>96.65</td>
<td>n/a</td>
<td>29.50</td>
<td>22.90</td>
<td>57.6</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S961004550</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>28.50</td>
<td>n/a</td>
<td>51.60</td>
<td>40.05</td>
<td>57.7</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S961004550</td>
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<td>% Water by TGA using Mettler</td>
<td>%</td>
<td>None</td>
<td>98.21</td>
<td>n/a</td>
<td>41.33</td>
<td>44.21</td>
<td>6.73</td>
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<td>n/a</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>S961004631</td>
<td></td>
<td>Alpha of Digested Solid</td>
<td>uC/l/g</td>
<td>-1.0e+03</td>
<td>55.10</td>
<td>101.7</td>
<td>5.00e-03</td>
<td>1.11e+02</td>
<td>7.19e-03</td>
<td>9.15e-03</td>
<td>42.8</td>
<td>n/a</td>
<td>1.10e-02</td>
<td>1.01e+02</td>
<td></td>
</tr>
</tbody>
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- Limit violated
- Selected Limit
## Table 1. 45-Day Data Summary Report
### A-101 (P)

#### SEGMENT PORTION: Lower Half of Segment

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R #</th>
<th>Analyte</th>
<th>Unit</th>
<th>Lower</th>
<th>Upper</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S961004464</td>
<td></td>
<td>Bulk Density of Sample</td>
<td>g/ml</td>
<td>None</td>
<td>None</td>
<td>n/a</td>
<td>n/a</td>
<td>1.740</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>5.00e+01</td>
<td>n/a</td>
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**CORE NUMBER: 156**

**SEGMENT #: 15**

**SEGMENT PORTION: Lower Half of Segment**

#### Drivable Liquid: Drivable Liquid

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R #</th>
<th>Analyte</th>
<th>Unit</th>
<th>Lower</th>
<th>Upper</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S961004586</td>
<td></td>
<td>DSC Exotherm using Mettler</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>89.65</td>
<td>n/a</td>
<td>28.30</td>
<td>27.30</td>
<td>26.40</td>
<td>6.82</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004586</td>
<td></td>
<td>DSC Exotherm using Mettler</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>89.65</td>
<td>n/a</td>
<td>28.30</td>
<td>27.30</td>
<td>26.40</td>
<td>6.82</td>
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<td>n/a</td>
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**= Limit violated**

**= Selected Limit**
### Table 1. 45-Day Data Summary Report

**A-101 (P)**

**CORE NUMBER:** 156  
**SEGMENT #:** 17

#### SEGMENT PORTION: L Lower Half of Segment

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R #</th>
<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Lower</th>
<th>Upper</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S96T004465</td>
<td></td>
<td>Bulk Density of Sample</td>
<td>g/mL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.700</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>5.00E-01</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004452</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>n/a</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004452</td>
<td></td>
<td>DSC Exotherm on Perkin Elmer</td>
<td>Joules/g</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>97.54</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
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<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004452</td>
<td></td>
<td>% Water by TGA on Perkin Elmer</td>
<td>%</td>
<td>None</td>
<td>None</td>
<td>99.46</td>
<td></td>
<td>44.10</td>
<td>41.92</td>
<td>43.01</td>
<td>5.07</td>
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<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>S96T004433</td>
<td></td>
<td>F Alpha of Digested Solid</td>
<td>uCi/g</td>
<td>-1.0e+03</td>
<td>35.40</td>
<td>116.0</td>
<td>&lt;1.36e-02</td>
<td>&lt;4.75e-03</td>
<td>&lt;9.36e-3</td>
<td>n/a</td>
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<td>n/a</td>
<td>n/a</td>
<td>1.20e-02</td>
<td>5.00E+02</td>
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#### Drainable Liquid: Drainable Liquid

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R #</th>
<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Lower</th>
<th>Upper</th>
<th>Standard %</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S96T004587</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g Dry</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>n/a</td>
<td>78.40</td>
<td>0.00e+00</td>
<td>59.30</td>
<td>200</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004587</td>
<td></td>
<td>DSC Exotherm on Perkin Elmer</td>
<td>Joules/g</td>
<td>-1.0e+03</td>
<td>480.0</td>
<td>96.95</td>
<td>42.12</td>
<td>21.06</td>
<td>200</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004587</td>
<td></td>
<td>% Water by TGA on Perkin Elmer</td>
<td>%</td>
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<td>None</td>
<td>99.69</td>
<td>46.46</td>
<td>46.41</td>
<td>46.44</td>
<td>0.11</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S96T004587</td>
<td></td>
<td>Alpha in Liquid Samples</td>
<td>uCi/mL</td>
<td>-1.0e+03</td>
<td>61.50</td>
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<td>n/a</td>
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<td>5.50E-02</td>
<td>5.00E+02</td>
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Limit violated  
Selected Limit
### Table 1. 45-Day Data Summary Report

**A-101 (P)**

**CORE NUMBER:** 156  
**SEGMENT #:** 18

**SEGMENT PORTION:** L Lower Half of Segment

<table>
<thead>
<tr>
<th>Sample#</th>
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<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Standard</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
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<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S961004278</td>
<td></td>
<td>Bulk Density of Sample</td>
<td>g/mL</td>
<td>-1.0e+03 None None n/a</td>
<td>658.3</td>
<td>95.50</td>
<td>n/a</td>
<td>1.600</td>
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<td>n/a</td>
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<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004280</td>
<td></td>
<td>DSC Exotherm using Mettler</td>
<td>Joules/g</td>
<td>-1.0e+03</td>
<td>460.0</td>
<td>95.50</td>
<td>n/a</td>
<td>51.70</td>
<td>43.90</td>
<td>47.80</td>
<td>16.3</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004280</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g</td>
<td>1.0e+03</td>
<td>460.0</td>
<td>n/a</td>
<td>95.50</td>
<td>93.30</td>
<td>79.20</td>
<td>86.25</td>
<td>16.3</td>
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<td>n/a</td>
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<tr>
<td>S961004280</td>
<td></td>
<td>% Water by TGA using Mettler</td>
<td>%</td>
<td>-1.0e+03 None None n/a</td>
<td>98.26</td>
<td>42.11</td>
<td>47.08</td>
<td>44.59</td>
<td>11.1</td>
<td>n/a</td>
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<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004284</td>
<td>F</td>
<td>Alpha of Digested Solid</td>
<td>uCi/g</td>
<td>-1.0e+03</td>
<td>95.50</td>
<td>110.0</td>
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<td>6.35e-03</td>
<td>9.37e-03</td>
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<td>n/a</td>
<td>1.00e-02</td>
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**Drainable Liquid: Drainable Liquid**

<table>
<thead>
<tr>
<th>Sample#</th>
<th>R A#</th>
<th>Analyte</th>
<th>Unit</th>
<th>Action Limits</th>
<th>Standard</th>
<th>Blank</th>
<th>Result</th>
<th>Duplicate</th>
<th>Average</th>
<th>RPD %</th>
<th>Spk Rec %</th>
<th>Det Limit</th>
<th>Count Err %</th>
</tr>
</thead>
<tbody>
<tr>
<td>S961004280</td>
<td></td>
<td>DSC Exotherm Dry Calculated</td>
<td>Joules/g</td>
<td>1.0e+03</td>
<td>460.0</td>
<td>n/a</td>
<td>9.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004280</td>
<td></td>
<td>DSC Exotherm on Perkin Elmer</td>
<td>Joules/g</td>
<td>1.0e+03</td>
<td>460.0</td>
<td>103.2</td>
<td>9.00e+00</td>
<td>0.00e+00</td>
<td>0.00e+00</td>
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<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004280</td>
<td></td>
<td>% Water by TGA on Perkin Elmer</td>
<td>%</td>
<td>None None n/a</td>
<td>99.26</td>
<td>47.29</td>
<td>47.63</td>
<td>47.46</td>
<td>0.72</td>
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<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>S961004280</td>
<td></td>
<td>Alpha in Liquid Samples</td>
<td>uCi/mL</td>
<td>-1.0e+03</td>
<td>61.58</td>
<td>95.31</td>
<td>1.10e-02</td>
<td>&lt;7.10E-3</td>
<td>n/a</td>
<td>n/a</td>
<td>91.64</td>
<td>1.80e-02</td>
<td>9.00E+02</td>
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= Limit violated  
=> Selected Limit
CHAIN OF CUSTODY FORMS
**CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING**

**I. Information**

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<thead>
<tr>
<th>Shipment Number</th>
<th>209W-08-T3</th>
<th>Sample Number</th>
<th>916-297</th>
<th>Supervisor</th>
<th>R. Linda Lent</th>
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<tbody>
<tr>
<td>Tank</td>
<td>A 101</td>
<td>Riser</td>
<td>15</td>
<td>Core</td>
<td>154</td>
</tr>
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<td>(i)</td>
<td></td>
<td></td>
<td></td>
<td>(b) Cask Serial Number</td>
<td>9-1015</td>
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**II. Radiation Survey Data**

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<thead>
<tr>
<th>Item</th>
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<tbody>
<tr>
<td>Over Tap Dose Rate</td>
<td>2.5</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>70</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>0 (0.2)</td>
</tr>
<tr>
<td>Radioactive Contamination</td>
<td>α (20 dpn)</td>
</tr>
<tr>
<td>RCT*</td>
<td>Mr. Myatt</td>
</tr>
<tr>
<td>Signature</td>
<td>RCT* (HPT)</td>
</tr>
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</table>

**III. Laboratory**

<table>
<thead>
<tr>
<th>Laboratory Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample X-rayed</td>
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<tr>
<td>Lithium bromide added: 178.5 ml</td>
</tr>
</tbody>
</table>

**IV. Shipment Description**

<table>
<thead>
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<th>Item</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Work Package Number</td>
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<tr>
<td>Cask Seal Number</td>
<td>10338</td>
</tr>
<tr>
<td>Sampler Serial Number</td>
<td>95-08165</td>
</tr>
<tr>
<td>Date and Time Sampler Unsealed</td>
<td>7-11-96 1400</td>
</tr>
<tr>
<td>Expected Liquid Content</td>
<td>38%</td>
</tr>
<tr>
<td>Expected Solid Content</td>
<td>20%</td>
</tr>
<tr>
<td>Dose Rate Through Drill String</td>
<td>72 mC/kg</td>
</tr>
<tr>
<td>Expected Sample Length</td>
<td>19&quot;</td>
</tr>
</tbody>
</table>

**V. Field Comments**

Sample X-rayed
Lithium bromide added: 178.5 ml

**VI. Laboratory Comments**

**VII. Seal Data Consistent with This Record?**

Yes [ ] No [ ]

**VIII. DISTRIBUTION:**

- White: Office of Sample Management
- Yellow: Recipient of Sample
- Pink: Core Sampling, 5E-05
- Goldenrod: Tank Farm Operations, 6E-45

*BC-6000-309 (102/94)*
<table>
<thead>
<tr>
<th>Field</th>
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<tbody>
<tr>
<td><strong>Shipper Number</strong></td>
<td>200W - 08-TF</td>
</tr>
<tr>
<td><strong>Sample Number</strong></td>
<td>96-178</td>
</tr>
<tr>
<td><strong>Supervisor</strong></td>
<td>Bendy</td>
</tr>
<tr>
<td><strong>Task</strong></td>
<td>A-101</td>
</tr>
<tr>
<td><strong>Site</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>Segment</strong></td>
<td>Z</td>
</tr>
<tr>
<td><strong>Cage</strong></td>
<td>154</td>
</tr>
<tr>
<td><strong>Sample Description</strong></td>
<td>ES-96-004x1</td>
</tr>
<tr>
<td><strong>Project Number</strong></td>
<td>11189</td>
</tr>
<tr>
<td><strong>Cash Seal Number</strong></td>
<td>96-293</td>
</tr>
<tr>
<td><strong>Sample Serial Number</strong></td>
<td>96-289</td>
</tr>
<tr>
<td><strong>Date and Time Sampled</strong></td>
<td>11/14</td>
</tr>
<tr>
<td><strong>Expected Liquid Content</strong></td>
<td>80%</td>
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<tr>
<td><strong>Expected Solid Content</strong></td>
<td>70%</td>
</tr>
<tr>
<td><strong>Died Roach Through Drill String</strong></td>
<td>1.5 P/e</td>
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</table>
**CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Shipment Number</td>
<td>2004-08-7F</td>
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<tr>
<td>(2) Sample Number</td>
<td>96-299</td>
</tr>
<tr>
<td>(3) Supervisor</td>
<td>BOCEN/1</td>
</tr>
<tr>
<td>(4) Tank</td>
<td>A-101</td>
</tr>
<tr>
<td>(5) Riser</td>
<td>15</td>
</tr>
<tr>
<td>(6) Segment</td>
<td>3</td>
</tr>
<tr>
<td>(7) Core</td>
<td>15/4</td>
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<td>(8) Cask Serial Number</td>
<td>17-6</td>
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</thead>
<tbody>
<tr>
<td>Field</td>
<td>Value</td>
</tr>
<tr>
<td>(9) Radiation Survey Data</td>
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</tr>
<tr>
<td>Over Top Dose Rate</td>
<td>1.95</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>0.70</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>0.80</td>
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<tr>
<td>Measurable Contamination</td>
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</tr>
<tr>
<td>(Alpha)</td>
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</tr>
<tr>
<td>(Beta-Comma)</td>
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<tr>
<td>(Beta-Comma)</td>
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<tr>
<td>(CT)</td>
<td></td>
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<td>(SP)</td>
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<tr>
<td>(SP)</td>
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<thead>
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<tr>
<td>(10) Shipment Description</td>
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</tr>
<tr>
<td>A. Work Package Number</td>
<td>85-96-00441</td>
</tr>
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<td>B. Cook Seal Number</td>
<td>11460</td>
</tr>
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<td>C. Sampler Serial Number</td>
<td>95-0805</td>
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<td>D. Date and Time Sampler Unsealed</td>
<td>7/11/96 2106</td>
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<td>E. Expected Liquid Content</td>
<td>20%</td>
</tr>
<tr>
<td>F. Expected Solid Content</td>
<td>70%</td>
</tr>
<tr>
<td>G. Dose Rate Through Drill String</td>
<td>1.5 R/m</td>
</tr>
<tr>
<td>H. Expected Sample Length</td>
<td>19&quot;</td>
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</table>

<table>
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<th>Field</th>
<th>Value</th>
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<tr>
<td>(11) INFORMATION (Include statement of laboratory tests to be performed)</td>
<td></td>
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<tr>
<td>(12) Field Comments</td>
<td>WATER w/LiBr USED AS NEUTRAL FLUID</td>
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<thead>
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<th>Field</th>
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<tr>
<td>(13) Point of Origin</td>
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<tr>
<td>(14) Destination</td>
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<tr>
<td>A. Source Name (Sign and PRINT)</td>
<td>BONNEFORT JAMES SICKELS</td>
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<td>(3) Date/Time</td>
<td>8-30-96</td>
</tr>
<tr>
<td>(4) Receiver Comments</td>
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</tr>
<tr>
<td>(15) Replenished By (Sign and PRINT)</td>
<td>BONNEFORT JAMES SICKELS</td>
</tr>
<tr>
<td>(5) Date/Time</td>
<td>8-30-96</td>
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<tr>
<td>(6) Receiver Comments</td>
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<tr>
<td>(16) Replenished By (Sign and PRINT)</td>
<td>BONNEFORT JAMES SICKELS</td>
</tr>
<tr>
<td>(7) Date/Time</td>
<td>8-30-96</td>
</tr>
<tr>
<td>(8) Receiver Comments</td>
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<table>
<thead>
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<tbody>
<tr>
<td>(17) Shipment No.</td>
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<td>(18) Seal Intact Upon Receipt?</td>
<td>Yes</td>
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<td>(19) Seal Intact Upon Receipt?</td>
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<tr>
<td>(20) Cask Seal No.</td>
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</tr>
<tr>
<td>(21) Sample No.</td>
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**DISTRIBUTION:**
- White - Office of Sample Management
- Yellow - Recipient of Sample
- Pink - Core Sampling, S-5-05
- Goldbrod - Tank Farm Operations, S4-A3

**BC-6000-308 (02/94)**
**CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING**

<table>
<thead>
<tr>
<th>(13) Shipment Number</th>
<th>(14) Tank</th>
<th>(5) Riser</th>
<th>(6) Segment</th>
<th>(3) Supervisor</th>
<th>(16a) Cash Serial Number</th>
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<tr>
<td>20Y-08-TF</td>
<td>A-101</td>
<td>15</td>
<td>6</td>
<td>M. C. Jones</td>
<td>C-2004</td>
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<table>
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<tr>
<th>(17) Consignee</th>
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<table>
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<th>(20) Laboratory</th>
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<table>
<thead>
<tr>
<th>(31) Seal Intact Upon Receipt?</th>
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<tbody>
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<td>[ ] Yes</td>
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<table>
<thead>
<tr>
<th>(18) Seal Intact Upon Release?</th>
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<tr>
<td>[ ] Yes</td>
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<table>
<thead>
<tr>
<th>(23) Reimbursement By (Name and PRINT)</th>
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</thead>
<tbody>
<tr>
<td>Reimbursement By James Sickel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(24) Reimbursement By (Name and PRINT)</th>
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</thead>
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<tr>
<td>Reimbursement By L. P. D.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>(32) Seal Data Consistent with this Record?</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Yes</td>
</tr>
</tbody>
</table>

**INFORMATION (Include statement of laboratory tests to be performed):**

- **A. Work Package Number:** ES-96-0041
- **B. Cash Tag Number:** 3241
- **C. Sample Serial Number:** 95-017S
- **D. Date and Time Samples Unsealed:** 7-12-96 10/10
- **E. Expected Liquid Content:** 7.0%
- **F. Expected Solid Content:** 13.0%
- **G. Sample Rate Through Drill String:** 19.0
- **H. Expected Sample Length:** 19.0

**Field Comments:**

- [ ] Yes | [ ] No

**Laboratory Comments:**

- [ ] Yes | [ ] No

**DISTRIBUTION:**
- White: Office of Sample Management
- Yellow: Recipient of Sample
- Pink: Core Sampling S6-85
- Goldcord: Tank Farm Operations S4-43
- BC-6000-305
### CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

<table>
<thead>
<tr>
<th>(1) Shipment Number</th>
<th>2004-08-26</th>
<th>(2) Sample Number</th>
<th>96-303</th>
<th>(3) Supervisor</th>
<th>BOGEY</th>
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<tbody>
<tr>
<td>(4) Tank</td>
<td>A-101</td>
<td>(5) Riser</td>
<td>15</td>
<td>(6) Segment</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(7) Core</td>
<td>154</td>
<td>(8) Cask Serial Number</td>
<td>C2008</td>
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**Radiation Survey Data:**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>&lt; 0.5 µSv/h</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>25 µSv/h</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>15 µSv/h</td>
</tr>
<tr>
<td>Smearable Contamination</td>
<td>&lt; 20</td>
</tr>
</tbody>
</table>

**Field Comments:**

*Water with LiBr used as head fluid.*

**Laboratory Comments:**

**Shipment Description:**

- A. Work Package Number: 135-96-00441
- B. Cask Seal Number: 11141
- C. Sampler Serial Number: 96-15-0759
- D. Date and Time Sampler Unseated: 7/11/96 1300
- E. Expected Liquid Content: 70.2%
- F. Expected Solid Content: 30.2%
- G. Dose Rate Through Drill String: 1.2 R/h
- H. Expected Sample Length: 19"

**Point of Origin:**

A-101

**Destination:**

222-5

**Sender Comments:**

*Please communicate for Boeun*

**Released By:**

RJ Prazni

**Received By:**

J. H. King

**Reinsequenced By:**

J. H. King

**Rearranged By:**

J. H. King

**Seal Intact Upon Release:**

Yes

**Seal Intact Upon Receipt:**

Yes

**Shipment No.:**

Yes

**Cask Seal No.:**

Yes

**Sample No.:**

Yes

**Date/Time:**

12/29/96 1307

**Receiver Comments:**

Yes
<table>
<thead>
<tr>
<th>Field</th>
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<tbody>
<tr>
<td>Sample Number</td>
<td>VC-0101</td>
</tr>
<tr>
<td>Core Number</td>
<td>C-2009</td>
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**Radiation Survey Data:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Side Dose Rate</td>
<td>20.0</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>12.0</td>
</tr>
<tr>
<td>Smearable Contamination</td>
<td>&lt;20</td>
</tr>
</tbody>
</table>

**Laboratory Comments:**

- Work Package Number: F3-16-0041
- Cask Seal Number: II1124
- Sampler Serial Number: RGS-025
- Date and Time Sampler Unsealed: 7/12/96 11:35
- Expected Liquid Content: 30%
- Expected Solid Content: 70%
- Dose Rate Through Drill String: 900 mCi/hr
- Expected Sample Length: 19"
# Chain-of-Custody Record for Core Sampling

<table>
<thead>
<tr>
<th>(1) Shipment Number</th>
<th>2004-08-TF</th>
<th>(2) Sample Number</th>
<th>96-305</th>
<th>(3) Supervisor</th>
<th>BOGERI</th>
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<tbody>
<tr>
<td>(4) Tank</td>
<td>A-101</td>
<td>(5) Riser</td>
<td>15</td>
<td>(6) Segment</td>
<td>7</td>
</tr>
<tr>
<td>(7) Core</td>
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<td>(8) Cask Serial Number</td>
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## Radiation Survey Data:

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<tr>
<th>Sample Type</th>
<th>Activity</th>
<th>(Bq/LE)</th>
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<tbody>
<tr>
<td>Alpha</td>
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<td>&lt;0.5</td>
</tr>
<tr>
<td>Beta-Gamma</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>(4) Bottom Rate</td>
<td>&lt;20</td>
<td>LIK</td>
</tr>
<tr>
<td>(5) Overhead Rate</td>
<td>86</td>
<td>LIK</td>
</tr>
</tbody>
</table>

## Laboratory Information

- A. Work Package Number: 11142
- B. Cask Seal Number: 95-1415
- C. Sampler Serial Number: 7/12/96 2035
- D. Date and Time Sampler Unloaded: 7/12/96 2035
- E. Expected Liquid Content: 30%
- F. Expected Solid Content: 20%
- G. Dosage Through Drilling String: 1.5 GBq
- H. Expected Sample Length: 19"

## Additional Information

- Field Comments: WATER WITH LIRI USED AS HEAVY FLUID.

<table>
<thead>
<tr>
<th>(13) Point of Origin</th>
<th>222.5</th>
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</thead>
<tbody>
<tr>
<td>(14) Destination</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Laboratory Comments

- John Sickels

---

This record is for the chain of custody for core sampling, ensuring proper documentation and accountability throughout the process. Each step is verified and signed off by relevant parties to maintain integrity and transparency.
### Chain of Custody Record for Core Sampling

**Shipments Number:** 200W-08-76    **Sample Number:** 96-306    **Supervisor:** Bobey

**Tank:** A-101    **Riser:** 15    **Segment:** 10    **Core:** 154    **Cask Serial Number:** C2011

#### Radiation Survey Data

<table>
<thead>
<tr>
<th>Field</th>
<th>Over Top Dose Rate</th>
<th>Side Dose Rate</th>
<th>Bottom Dose Rate</th>
<th>Smearable Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;0.5 mR/hr</td>
<td>30 mR/hr</td>
<td>16 mR/hr</td>
<td>&lt;20 &lt;br&gt;(Alpha)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;1K &lt;br&gt;(Beta-Gamma)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RCT* HPT</td>
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<td></td>
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#### Laboratory

<table>
<thead>
<tr>
<th>Field</th>
<th>Over Top Dose Rate</th>
<th>Side Dose Rate</th>
<th>Bottom Dose Rate</th>
<th>Smearable Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5 mR/hr</td>
<td>25 mR/hr</td>
<td>20 mR/hr</td>
<td>&lt;20 &lt;br&gt;(Alpha)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;1K &lt;br&gt;(Beta-Gamma)</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>RCT* HPT</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td>Signature</td>
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</table>

#### Shipment Description

- **A. Work Package Number:** E5-96-00441
- **B. Cask Seal Number:** 1143
- **C. Sampler Serial Number:** 95-1085
- **D. Date and Time Sampler Unseated:** 7/12/96 2:125
- **E. Expected Liquid Content:** 30% 96% 70%
- **G. Dose Rate Through Oril String:** 1.4 R/hr 19

#### Information

- **INFORMATION (Include statement of laboratory tests to be performed.)**

92

#### Field Comments

WATER L/W LIBY USED AS HEAD FLUID

#### Laboratory Comments

**Point of Origin:** A-101 **Destination:** 2225

**Sender Name:** RJ Krawiec  **Date/Time:** 7/22/96 1:02

**Sender Comments:**

**Receiving Date:** 7/22/96

**Receiving Time:** 3:03

**Receiver Comments:**

**Seal Date Consistent with this Record?**

- Yes [ ] No [ ]
<table>
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<td>&lt;0.5 mHr</td>
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<td>Side Dose Rate</td>
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<td>7.0 mHr</td>
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<td>Bottom Dose Rate</td>
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<td>10 mHr</td>
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<tr>
<td>Smearable Contamination</td>
<td>&lt;20</td>
<td>&lt;20 mHr</td>
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<tr>
<td>Alpha</td>
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<td>&lt;1K</td>
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<tr>
<td>Beta-Gamma</td>
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<td>RCT* HPT (Signature)</td>
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<tr>
<th>(11) INFORMAION (Include statement of laboratory tests to be performed.)</th>
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<th>(12) Field Comments</th>
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<table>
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<tr>
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<tr>
<td>222 S</td>
<td>Bogen</td>
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<table>
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<th>(16) Date/Time</th>
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<tbody>
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<table>
<thead>
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<th>(19) Seal Intact Upon Receipt?</th>
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<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>(20) Shipment No.</th>
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<table>
<thead>
<tr>
<th>(23) Date/Time</th>
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<tr>
<td>12/22/85</td>
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<th>(31) Seal Intact Upon Receipt?</th>
<th>(32) Seal Date Consistent with this Record?</th>
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<tbody>
<tr>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>(33) LABORATORY</th>
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</thead>
<tbody>
<tr>
<td>(34) Laboratory Comments</td>
</tr>
<tr>
<td>A. Work Package Number</td>
</tr>
<tr>
<td>B. Cask Seal Number</td>
</tr>
<tr>
<td>C. Sampler Serial Number</td>
</tr>
<tr>
<td>D. Date and Time Sampled Unsealed</td>
</tr>
<tr>
<td>E. Expected Liquid Content</td>
</tr>
<tr>
<td>F. Expected Solid Content</td>
</tr>
<tr>
<td>G. Dose Rate Through Drill String</td>
</tr>
<tr>
<td>H. Expected Sample Length</td>
</tr>
</tbody>
</table>
# RGS

## CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

<table>
<thead>
<tr>
<th>(11) Shipment Number</th>
<th>(12) Sample Number</th>
<th>(31) Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-08-TE</td>
<td>96-308</td>
<td>R. Frank Frost</td>
</tr>
</tbody>
</table>

### Field Data

<table>
<thead>
<tr>
<th>Over Top Dose Rate</th>
<th>(9) Field</th>
<th>(3) LABORATORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8 mrem</td>
<td>0.8 mrem</td>
<td>0.8 mrem</td>
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<table>
<thead>
<tr>
<th>Side Close Rate</th>
<th>Bottom Dose Rate</th>
<th>Sourceable Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.6 mrem</td>
<td>0.6 mrem</td>
<td>0.6 mrem</td>
</tr>
<tr>
<td>15 mrem</td>
<td>15 mrem</td>
<td>&lt;20</td>
</tr>
</tbody>
</table>

### Laboratory Data

- **A. Work Package Number**: 12F-797-7054-10309
- **B. Cask Seal Number**: 1759-922
- **C. Sampler Serial Number**: 12F-797-0555
- **D. Data and Time Sampler Unsealed**: 7-12-94
- **E. Expected Liquid Content**: 30%
- **F. Expected Solid Content**: 70%
- **G. Dose Rate Through Drill Rating**: 2.08
- **H. Expected Sample Length**: 19

### Field Comments

- **RGS sample**
- **Sample X-rayed**
- **Sodium Bromide 150mCi added**

### Laboratory Comments

- **Sample No.**

### Seal Data

- **Seal Intact Upon Release**: Yes
- **Seal Intact Upon Receipt**: Yes
- **Seal Data Consistent with this Record**: Yes

---

**DISTRIBUTION:**
- White: Office of Sample Management
- Yellow: Recipient of Sample
- Pink: Core Sampling, 5G-85
- Goldenrod: Tank Farm Operations, 34-43
CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

<table>
<thead>
<tr>
<th>Field</th>
<th>Laboratory</th>
<th>(10) Shipment Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) FIELD</td>
<td>(33) LABORATORY</td>
<td>(10) Shipment Description</td>
</tr>
<tr>
<td>Over Top Dose Rate</td>
<td>&lt; 0.5</td>
<td>A. Work Package Number</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>4.3</td>
<td>B. Cask Seal Number</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>1.3</td>
<td>C. Sampler Serial Number</td>
</tr>
<tr>
<td>Smearable Contamination (Alpha)</td>
<td>&lt; 1K</td>
<td>D. Date and Time Sampler Unsealed</td>
</tr>
<tr>
<td></td>
<td>&lt; 1K</td>
<td>E. Expected Liquid Content</td>
</tr>
<tr>
<td>(Beta-Gamma)</td>
<td></td>
<td>F. Expected Solid Content</td>
</tr>
<tr>
<td>RCT* (HPT)</td>
<td></td>
<td>G. Dose Rate Through Drill String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H. Expected Sample Length</td>
</tr>
</tbody>
</table>

(11) INFORMATION (Include statement of laboratory tests to be performed.)

95

(12) Field Comments

1500 mCi Lithium Bromide added
sample clean - no x-ray

Laboratory Comments

(34) Laboratory Comments

(13) Point of Origin | (14) Destination | (15) Sender Name (Sign and PRINT) | (16) Date/Time
R-15 | 222S Lab. | DOIY R. Ziehlhofer for F. Frost | 7-24-96 08:30 AM
(17) Relinquished By (Sign and PRINT) | (18) Received By (Sign and PRINT) | (19) Sender Comments
DAVID J. Keene | DOY R. Ziehlhofer for F. Frost | 7-24-96 08:30 AM
(21) Date/Time | (22) Receiver Comments
1:45 PM | DAVID J. Keene
(23) Relinquished By (Sign and PRINT) | (24) Received By (Sign and PRINT) | (25) Date/Time
DAVID J. Keene | DOY R. Ziehlhofer for F. Frost | 7-27-96 9:56 AM
(27) Relinquished By (Sign and PRINT) | (28) Received By (Sign and PRINT) | (29) Date/Time
DAVID J. Keene | DOY R. Ziehlhofer for F. Frost | 7-27-96 9:56 AM

Yes | Yes | | | 
No | No | | | 

(5) Riser 15 | (6) Segment 18 | (7) Core 154 | (8) Cask Serial Number C-2003

(20) Received By (Sign and PRINT) | (26) Receiver Comments
DAVID J. Keene | | 
(28) Received By (Sign and PRINT) | (30) Receiver Comments
DAVID J. Keene | | 

(32) Seal Date Consistent with this Record?
Yes | No

(22) Receiver Comments
DAVID J. Keene | 
(28) Received By (Sign and PRINT) | DAVID J. Keene | 
(30) Receiver Comments
DAVID J. Keene | 

(31) Seal Intact Upon Receipt?
Yes | No

(28) Received By (Sign and PRINT) | DAVID J. Keene | 
(30) Receiver Comments
DAVID J. Keene | 

(32) Seal Date Consistent with this Record?
Yes | No

(28) Received By (Sign and PRINT) | DAVID J. Keene | 
(30) Receiver Comments
DAVID J. Keene | 

(32) Seal Date Consistent with this Record?
Yes | No

(28) Received By (Sign and PRINT) | DAVID J. Keene | 
(30) Receiver Comments
DAVID J. Keene | 

(32) Seal Date Consistent with this Record?
Yes | No
CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number: 2004-08-TF  (2) Sample Number: 96-310
(3) Supervisor: R. Frank Lent

(7) Core: 154  (8) Cask Serial Number: 60

Radiation Survey Data:
(9) FIELD
- Over Top Dose Rate: 0.5
- Side Dose Rate: 45 mR/h
- Bottom Dose Rate: 20 mR/h
- Smearable Contamination: 0.5
  (Alpha) 1K
  (Beta-Gamma) RCT

(11) INFORMATION (Include statement of laboratory tests to be performed.)

Field Comments:
1500 mBq lithium bromide added
no X-ray
sample clean

Point of Origin: 8-15
2225 Lab
Retained By: R. Frank Lent

Date/Time: 7-22-96
R. Frank Lent for R. Frost

Destination: 2225 Lab
Released By: R. Frank Lent

Date/Time: 7-22-96
David J Keane

Retained By: David J Keane

Date/Time: 7-22-96
David J Keane

Retained By: David J Keane

Date/Time: 7-22-96
Dudley Edbrooke

Date/Time: 7-22-96
Dudley Edbrooke

Date/Time: 7-22-96
Dudley Edbrooke

(18) Seal Intact Upon Release: Yes
(31) Seal Intact Upon Receipt: Yes
(30) Cask Seal No. 10311
(10) Shipment Description: FS-96-00441
(14) Sender Name: R. Frank Lent
(15) Receiver Name: R. Frank Lent
(17) Sender Comments:

(32) Seal Data Consistent with this Record: Yes

Sample No.: Yes

CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

Shipment Number: J094W-08-TF
Sample Number: 96-311
(31) Supervisor: BOGEN
(19) Cask Serial Number: C28005

[Field Survey Date]
[Field Top Dose Rate]
[Field Dose Rate]

[Sample Date]
[Sample Top Dose Rate]
[Sample Dose Rate]

LUMINOUS CONTAMINATION

(A) [Field Kitchen]

(B) [Signature]

(C) [Field Kitchen]

(D) [Signature]

E. Expected Liquid Content:
F. Expected Solid Content:
G. Dose Rate Through Drill String:
H. Expected Sample Length:

[Field Comments]
WATER w/ LIQUI TRACER USED AS MEDIUM

[Destination]

[Origin]

[Dest Name]

[Origin Name]

[Distributor]

[Recipient]

[Date of Despatch]

[Date of Receipt]

[Seal Date Consistent with this Record]

[Seal Upon Release]

[Seal Upon Receipt]

DISTRIBUTION: White - Office of Sample Management  Yellow - Recipient of Sample  Pink - Core Sampling, 50-95  Gold - Tank Farm Operations, 94-95  CO-0000-2002-102-154
# Chain of Custody Record for Core Sampling

## Shipment Information
- **Shipment Number**: 28-W-08-TE
- **Sample Number**: 96-312
- **Supervisor**: Bogen
- **Core**: 154
- **Cask Serial Number**: C20 16
- **Tank**: A-101
- **Riser**: 15
- **Segment**: 16

## Radiation Survey Data
- **Over Top Dose Rate**: 0.5
- **Side Dose Rate**: 40
- **Bottom Dose Rate**: 15
- **Scorable Contamination**: 0.1

## Laboratory Data
- **Field**: 0.5
- **Laboratory**: 3.8
- **Expected Liquid Content**: 7/1/96 03:45
- **Expected Solid Content**: 7/1/96 03:45
- **Dose Rate Through Drill String**: 1.8 r/f

## Field Comments
- **Water w/ LIX used as Head Fluid**

## Laboratory Comments

## Additional Information
- **Laboratory**: Bogen
- **Date/Time of Test**: 7/1/96 03:45
- **Receiver Comments**:
  - **Date/Time**: 7-22-96
  - **Laboratory**: Bogen
- **Cask Serial Number**: C20 16
- **Sample No.**:

---

**Note**: The form includes various signatures and dates related to the handling and testing of the core sample.
# Chain-of-Custody Record for Core Sampling

## (1) Shipment Number: S0001-08-TF  
## (2) Sample Number: 16-313  
## (3) Supervisor: B0684  
## (4) Tank: A-101  
## (5) Risers: 15  
## (6) Segment: 17  
## (7) Core: 154  
## (8) Cage Serial Number: 1007C

### Radiation Survey Date:
- **[5a] HELD**
- **[5b] LABORATORY**
  - Over Total Dose Rate: 5500 mSv/h @ 1m
  - Side Dose Rate: 600 mSv/h @ 1m
  - Bottom Dose Rate: 700 mSv/h @ 1m
- **[6b]** Measurable Contamination (Alpha): 220 DPM/1000 cm²
- **[6c]** Measurable Contamination (Beta-Gamma): 1400 DPM/1000 cm²

### (10) Shipment Description:
- **Work Package Number:** 11151
- **Cage Serial Number:** 95-0445
- **Sample Serial Number:** 215896 0617
- **Date and Time Sampled Unsealed:** 21/01/94 0617
- **Expected Liquid Content:** 302
- **Expected Solid Content:** 202
- **Dose Rate Through Drill String:** 100 mSv/kr
- **Expected Sample Length:** 17 in

### (11) INFORMATION (Include statement of laboratory tests to be performed.)

**WATER w/ CIB TRACER USED AS HEAD FLUID**

### (12) Field Comments:

- **[12a] Field Comments:**
  - **[12b] Field Comments:**

### (13) Point of Origin:
- **[13a] Point of Origin:**
- **[13b] Originated By:**

### (14) Destination:
- **[14a] Destination:**
- **[14b] Destination:**

### (15) Senders Name (Sign & PRINT):
- **[15a] Senders Name:**
- **[15b] Senders Name:**

### (16) Cage Tag:
- **[16a] Cage Tag:**
- **[16b] Cage Tag:**

### (17) Senders Comments:
- **[17a] Senders Comments:**
- **[17b] Senders Comments:**

### (18) Seal Intact Upon Receipt?
- **[18a] Seal Intact Upon Receipt:**
- **[18b] Seal Intact Upon Receipt:**

### (19) Seal Data Consistent with this Record?
- **[19a] Seal Data Consistent with this Record:**
- **[19b] Seal Data Consistent with this Record:**

### (20) Seal Intact Upon Receipt:
- **[20a] Seal Intact Upon Receipt:**
- **[20b] Seal Intact Upon Receipt:**

### (21) Seal Data Consistent with this Record?
- **[21a] Seal Data Consistent with this Record:**
- **[21b] Seal Data Consistent with this Record:**

### DISTRIBUTION:
- White - Office of Sample Management
- Yellow - Recipient of Sample
- Pink - Core Sampling, 56-55
- Gold - Tank Farm Operations, 54-43
- BC-6000-509 802C
### Chain-of-Custody Record for Core Sampling

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<thead>
<tr>
<th>Field</th>
<th>Laboratory</th>
<th>Date/Time</th>
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<tr>
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<td>2.5</td>
<td>2.05</td>
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<td>Side Dose Rate</td>
<td>9.6</td>
<td>Less than 20</td>
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<td>Bottom Dose Rate</td>
<td>2.0</td>
<td>Less than 20</td>
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<td>Measurable Contamination (Alpha)</td>
<td>0.14</td>
<td>1.4</td>
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<tr>
<td>Measurable Contamination (Beta Gamma)</td>
<td>0.014</td>
<td>0.014</td>
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<td>Shipments Description</td>
<td>ES-96-00441</td>
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<tr>
<td>Work Package Number</td>
<td>10355</td>
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<td>Cask Seal Number</td>
<td>95-0598</td>
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<tr>
<td>Sample Serial Number</td>
<td>10-214</td>
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<tr>
<td>Date and Time Sampled Returned</td>
<td>7-18-96/10-24</td>
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<tr>
<td>Expected Liquid Content</td>
<td>30%</td>
<td></td>
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<tr>
<td>Expected Solid Content</td>
<td>70%</td>
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<tr>
<td>Dose Rate Through Drill String</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Expected Sample Length</td>
<td>19”</td>
<td></td>
</tr>
</tbody>
</table>

**11. Field Comments**
- Added 10 mg/mL lithium hexamolybdate to sample.
- Sample taken from core.
- Segmented at 1946.

**16. Date/Time**
- 2.05
- 2.18-96

**21. Seal Intact Upon Receipt?**
- Yes

**22. Seal Data Consistent with this Record?**
- Yes
# CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

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<tr>
<th>STN. Number</th>
<th>2002-08-1F</th>
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<td>RA Number</td>
<td>15</td>
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<tr>
<td>Segment</td>
<td>19</td>
</tr>
<tr>
<td>Core</td>
<td>154</td>
</tr>
<tr>
<td>Control No.</td>
<td>74</td>
</tr>
<tr>
<td>Date</td>
<td>7-18-96</td>
</tr>
<tr>
<td>Time</td>
<td>12:15 PM</td>
</tr>
<tr>
<td>Site Name</td>
<td>Untouched</td>
</tr>
<tr>
<td>Condition</td>
<td>Sampled</td>
</tr>
<tr>
<td>Description</td>
<td>Sampled</td>
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<tr>
<td>Remarks</td>
<td>None</td>
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<td>Comments</td>
<td>None</td>
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<td>Logbook No.</td>
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<tr>
<td>Work Package Number</td>
<td>0351</td>
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<td>Cask Seal No.</td>
<td>RGS-020</td>
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<tr>
<td>Sampler Serial No.</td>
<td>2-18-96/1222</td>
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<tr>
<td>Data and Time Sampler Unloaded</td>
<td>30%</td>
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<tr>
<td>Expected Liquid Content</td>
<td>70%</td>
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<tr>
<td>Expected Solid Content</td>
<td>70%</td>
</tr>
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<td>Dose Rate Through Cell Sliding</td>
<td>470 MR</td>
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<td>Expected Sample Length</td>
<td>19'</td>
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2) Field Comments

*RGS sample
 - Sampled x-rayed sample dirty*
### Chain-of-Custody Record for Core Sampling

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<th>Content</th>
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<tr>
<td>Sample Number</td>
<td>BLANK</td>
</tr>
<tr>
<td>Supervisor</td>
<td>Office of Sample Management</td>
</tr>
<tr>
<td>Tank</td>
<td>A-101</td>
</tr>
<tr>
<td>Riser</td>
<td>15</td>
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<tr>
<td>Segment</td>
<td>BLANK</td>
</tr>
<tr>
<td>Case</td>
<td>154</td>
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<tr>
<td>Cask Serial Number</td>
<td>C-20016</td>
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**Radiation Survey Data**

<table>
<thead>
<tr>
<th>Field</th>
<th>Content</th>
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</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>≤0.5</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>≤0.5</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>≤0.5</td>
</tr>
<tr>
<td>Smearable Contamination (Alpha)</td>
<td>≤20</td>
</tr>
<tr>
<td>(Beta-Gamma)</td>
<td>≤1K</td>
</tr>
</tbody>
</table>

**Laboratory Data**

<table>
<thead>
<tr>
<th>Field</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Package Number</td>
<td>E5-94-0041</td>
</tr>
<tr>
<td>Cask Seal Number</td>
<td>10354</td>
</tr>
<tr>
<td>Sampler Serial Number</td>
<td>95-0985</td>
</tr>
<tr>
<td>Date and Time Sampler Unseated</td>
<td>7-18-96</td>
</tr>
<tr>
<td>Expected Liquid Content</td>
<td>100%</td>
</tr>
<tr>
<td>Expected Solid Content</td>
<td></td>
</tr>
<tr>
<td>Dose Rate Through Drill Sampling</td>
<td></td>
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<tr>
<td>Expected Sample Length</td>
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**Field Comments**

<table>
<thead>
<tr>
<th>Field</th>
<th>Content</th>
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<tbody>
<tr>
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**Laboratory Comments**

<table>
<thead>
<tr>
<th>Field</th>
<th>Content</th>
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<td>Remarks</td>
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**Seal Data**

<table>
<thead>
<tr>
<th>Field</th>
<th>Content</th>
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<tbody>
<tr>
<td>Remarks</td>
<td></td>
</tr>
</tbody>
</table>

**Distribution**

- White - Office of Sample Management
- Yellow - Recipient of Sample
- Blue - Core Sampling, S&O
- Gold - Tank Farm Operations, S&O
- BC-6000-309 (02/96)
<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
<td>Shipment Number</td>
<td>N/K</td>
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<tr>
<td>Tank</td>
<td>A-101</td>
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<tr>
<td>Segment</td>
<td>HSF</td>
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<tr>
<td>Core</td>
<td>154</td>
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<tr>
<td>Field</td>
<td>HSF</td>
</tr>
<tr>
<td>Sample Number</td>
<td>HSF</td>
</tr>
<tr>
<td>Supervisor</td>
<td>R. Frank First</td>
</tr>
<tr>
<td>Date and Time Sampler Unused</td>
<td>7-18-96 1145</td>
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<tr>
<td>Work Package Number</td>
<td>ES-96-20441</td>
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<tr>
<td>Cask Seal Number</td>
<td>1A</td>
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<tr>
<td>Sampler Serial Number</td>
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<tr>
<td>Date and Time Sampler Unused</td>
<td>7-18-96 1145</td>
</tr>
<tr>
<td>Expected Liquid Content</td>
<td>106%</td>
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<tr>
<td>Expected Solid Content</td>
<td></td>
</tr>
<tr>
<td>Dose Rate Through Drill String</td>
<td></td>
</tr>
<tr>
<td>Expected Sample Length</td>
<td></td>
</tr>
</tbody>
</table>

1) INFORMATION (Include statement of laboratory tests to be performed.)

2) Field Comments

HSH = Blank Lithium Bromide Sample.

3) Point of Origin

| HSF | 2225 Lbr. | Anna Sickle James Sickle |
|-------------------------------|-------------|
| Requisitioned By (Sign and PRINT) | Anna Sickle James Sickle |
| Received By (Sign and PRINT) | custos s. |
| Requisitioned By (Sign and PRINT) | custos s. |
| Received By (Sign and PRINT) | custos s. |
| Requisitioned By (Sign and PRINT) | custos s. |
| Received By (Sign and PRINT) | custos s. |

4) Seal Intact Upon Release?

5) Seal Intact Upon Receipt?

6) Sample No.

7) Cask Seal No.

8) Shipment No.

Tribution: White - Office of Sample Management Yellow - Recipient of Sample Pink - Core Sampling, S6-85 Goldenrod - Tank Farm Operations, S4-43 BC-6000-305 (02/94)
CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number: 200W-08-TE
(2) Sample Number: 96-3360
(3) Supervisor: M.C. Jones
(4) Tank: A-101
(5) Pile: 24
(6) Segment: 1
(7) Core: 96
(8) Cask Serial Number: 249

Radiation Survey Data:
(31) HELD
Over Top Dose Rate: 5 mcw/hr + C
Side Dose Rate: 16 mcw/hr + C
Bottom Dose Rate: <20 DPM/100 cc
Smearable Contamination
(A) Alpha: <1,000 DPM/100 cc
(RCT: DJ Dedman [Signature])
(B) Beta-Gamma: <10 cpm
(RCT: DHPT [Signature])

(33) LABORATORY

(34) Laboratory Comments

(11) INFORMATION (Include statement of laboratory tests to be performed)

104

[Handwritten notes:
X-RAY SHOWED ABOUT 90° IN SAMPLER.
CARDIS IS ONLY #2 WAY UP THE SAMPLER.
]

(13) Seal Data Consistent with the Record:

[Handwritten notes:

DISTRIBUTION: White - Office of Sample Management
Yellow - Recipient of Sample
Pink - Core Sampling, 56-99
Gold - Tank Farm Operations, 54-43
BC-6000-309 (02/84)
CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

(1) Shipment Number: 2000-08-17  (2) Sample Number: 96-337  (3) Supervisor: Ms. Jones

Radiation Survey Date: (9) HELI (23) LABORATORY
Over Top Dose Rate: <0.5 40.5
Safe Dose Rate: 30 30
Bottom Dose Rate: 18 15
Nonradioactive Contamination: RCT - (Aeta-Gamma)  RCT - (K)

(10) Shipment Description: E5-96-00413
A. Work Package Number: 10204
B. Cash Seal Number: RGS-022
C. Sampler Serial Number: 7-22-96 0330
D. Date and Time Sampler Unsewed: 7-22-96 0330
E. Expected Liquid Content: 30%
F. Expected Solid Content: 70%
G. Dose Rate Through Drill String: 1.3 mkr
H. Expected Sample Length: 19

(11) INFORMATION (Include statement of laboratory tests to be performed.)

(12) Field Comments: X-RAY showed no sampler was full

(15) Sender Name (GP and PRINT): David O. Keene  (16) Date/Time: 7-23-96
(17) Sender Comments: 

(18) Seal Intact Upon Release: Yes  No  (31) Seal Intact Upon Receipt: Yes  No
(32) Seal Date Consistent with TS Record: Yes  No

(19) Reipherals by Sign and PRINT: [Signature]
(20) Received by Sign and PRINT: [Signature]
(21) Date/Time: 7-23-96

(22) Receptors Comments: 

(23) Date/Time: 7-23-96
(24) Received by Sign and PRINT: [Signature]

(25) Receptors Comments: 

(26) Date/Time: 7-23-96
(27) Reipherals by Sign and PRINT: [Signature]
(28) Received by Sign and PRINT: [Signature]

DISTRIBUTION: White - Office of Sample Management  Yellow - Recipient of Sample  Pink - Core Sampling, 54-35  Gold Seal - Tank Farm Operations, 54-43
# Chain-of-Custody Record for Core Sampling

## Shipment Number

- **200W-08-TF**

## Sample Number

- **96-338**

## Supervisor

- **M. C. Jones**

## Tank

- **A-101**

## Riser

- **24**

## Segment

- **3**

## Core

- **156**

## Cask Serial Number

- **SN-73**

## Radiation Survey Data:

<table>
<thead>
<tr>
<th>Item</th>
<th>Field</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>6.5 mSv/h</td>
<td>60.5 mSv/h</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>32 mSv/h</td>
<td>30 mSv/h</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>20 mSv/h</td>
<td>13 mSv/h</td>
</tr>
<tr>
<td>Removable Contamination</td>
<td>0.2 (Alpha)</td>
<td>0.2 (Alpha)</td>
</tr>
<tr>
<td></td>
<td>0.01 K (Beta-Gamma)</td>
<td>0.00 K (Beta-Gamma)</td>
</tr>
<tr>
<td>RCT* (HPT)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>(Signature)</td>
<td></td>
<td></td>
</tr>
</tbody>
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## Shipment Description

- **ES-96-00443**

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Work Package Number</td>
<td>N/A</td>
</tr>
<tr>
<td>B. Cask Seal Number</td>
<td>10205</td>
</tr>
<tr>
<td>C. Sampler Serial Number</td>
<td>96-034</td>
</tr>
<tr>
<td>D. Date and Time Unseated Sample</td>
<td>07-22-96</td>
</tr>
<tr>
<td>E. Expected Liquid Content</td>
<td>30%</td>
</tr>
<tr>
<td>F. Expected Solid Content</td>
<td>70%</td>
</tr>
<tr>
<td>G. Dose Rate Through Drift String</td>
<td>1.3 R/hr</td>
</tr>
<tr>
<td>H. Expected Sample Length</td>
<td>19&quot;</td>
</tr>
</tbody>
</table>

## Information (Include statement of laboratory tests to be performed.)

- N/A

## Field Comments

- N/A

## Laboratory Comments

- N/A

## Additional Information

- **A-101**
- **222-5**
- **James Sickle, James Sickle**
- **Date/Time:** 07/14/96
- **Document:** EEDocs

## Seal Intact Upon Release

- Yes

## Seal Intact Upon Receipt

- Yes

## Date/Time

- 07/14/96

## Seal Date Consistent with this Record

- Yes
# Chain of Custody Record for Core Sampling

**Shipment Number:** 2000-08-TF  
**Sample Number:** 96-339  
**Supervisor:** Bogen  
**Tank:** A-101  
**Riser:** 24  
**Segment:** 4  
**Core:** 156  
**Cask Serial Number:** C2013

**Radiation Survey Data:**
- **Over Top Dose Rate:** 1.5  
- **Side Dose Rate:** 64  
- **Bottom Dose Rate:** 40  
- ** smearable Contamination:** 10  
- **(Alpha):** 20  
- **(Beta-Gamma):** 1K

**Shipment Description:**
- **A. Work Package Number:** ES-96-00-143  
- **B. Cask Seal Number:** 1147  
- **C. Sampler Serial Number:** 96-029  
- **D. Date and Time Sampler Unsealed:** 7/22/96-13:10  
- **E. Expected Liquid Content:** 302  
- **F. Expected Solid Content:** 702  
- **G. Dose Rate Through Drill String:** 1.0 R/hr  
- **H. Expected Sample Length:** 19'

**INFORMATION** (Include statement of laboratory tests to be performed):

**Field Comments**

**Laboratory Comments**

**Point of Origin:** A-101  
**Destination:** 222S  
**Sender Name (Sign and PRINT):** James Sickle

- **Date:** 8/16/96  
- **Sender Comments:**

**Relinquished By (Sign and PRINT):**

- **Date/Time:** 8/16/96  
- **Receiver Comments:**

**Received By (Sign and PRINT):**

- **Date/Time:** 8/16/96  
- **Receiver Comments:**

**Seal Intact Upon Release:** Yes  
**Seal Intact Upon Receipt:** Yes  
**Shipment No.:**  
**Cask Seal No.:**  
**Sample No.:** Yes

**Distribution:**
- White - Office of Sample Management  
- Yellow - Recipient of Sample  
- Pink - Core Sampling, S6-85  
- Goldenrod - Tank Farm Operations, S4-43

**COPY**
# Chain-of-Custody Record for Core Sampling

## Shipment Number: 2000-08 TF

<table>
<thead>
<tr>
<th>Field</th>
<th>Laboratory</th>
<th>Shipper Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Number</td>
<td>96-340</td>
<td>ES-96-00443</td>
</tr>
<tr>
<td>Tank</td>
<td>A-101</td>
<td></td>
</tr>
<tr>
<td>(5) Risers</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>(6) Segment</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>(7) Core</td>
<td>156</td>
<td></td>
</tr>
<tr>
<td>(8) Cask Serial Number</td>
<td>C-2014</td>
<td></td>
</tr>
<tr>
<td>(9) Field</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>(10) Laboratory</td>
<td>60.5 ml/hv</td>
<td></td>
</tr>
<tr>
<td>(11) Shipment Description</td>
<td>ES-96-00443</td>
<td>10354</td>
</tr>
</tbody>
</table>

### Dosage Rates
- **Top Dose Rate**: 210 ml/hv
- **Bottom Dose Rate**: 150 ml/hv
- **Measurable Contamination**: 
  - Alpha: 600 mCi
  - Beta-Gamma: 200 mCi

### Other Information
- **Field Comments**: 100 ml LiTH. Bromide added
- **Sample Comments**: Sampler, sampler clean, no waste or liquid
- **Point of Origin**: A-101
- **Destination**: 2225 LAB
- **Owner**: James Sikes
- **Date/Time**: 8-14-96
- **Receiver Comments**: David Kreamer

### Dates
- **Date/Time**: 8-14-96
- **Date/Time**: 8-14-96
- **Date/Time**: 8-14-96
- **Date/Time**: 8-14-96
- **Date/Time**: 8-14-96
- **Date/Time**: 8-14-96

### Seal Intact Upon Release?
- **Yes**: No

### Seal Intact Upon Receipt?
- **Yes**: No

### Cask Seal Number
- **Yes**: No
m
c

T10
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N
W


<table>
<thead>
<tr>
<th>Field</th>
<th>Over Top Dose Rate</th>
<th>Side Dose Rate</th>
<th>Bottom Dose Rate</th>
<th>Smearable Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.5 mSv/h</td>
<td>25 mSv/h</td>
<td>10 mSv/h</td>
<td>&lt;1K (Alpha)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCT*</td>
<td>(HPT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Over Top Dose Rate</th>
<th>Side Dose Rate</th>
<th>Bottom Dose Rate</th>
<th>Smearable Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>10.5 mSv/h</td>
<td>25 mSv/h</td>
<td>10 mSv/h</td>
<td>&lt;2K (Beta-Gamma)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCT*</td>
<td>(HPT)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signature</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>U.S. Code</th>
<th>Shipment Number</th>
<th>Incoterms</th>
<th>Destination</th>
<th>Cask Seal Number</th>
<th>Date and Time Sampler Unsealed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ES-96-00443</td>
<td>222-S</td>
<td></td>
<td></td>
<td>10200</td>
<td>7-23-96 10:15</td>
</tr>
</tbody>
</table>

**Field Comments:**
L/IIR added to drill string for head fluid.

**Laboratory Comments:**

**Point of Origin:**
A-101

**Destination:**
222-S

**Sender Name:**
James Nichols

**Date/Time:**
8-14-96

**Receiver Comments:**

**Seal Intact Upon Release:**
Yes

**Seal Intact Upon Receipt:**
Yes
## Chain-of-Custody Record for Core Sampling

### 1. Shipment Number: 200-08-9F
### 2. Sample Number: 96-343
### 3. Supervisor: M. C. Jones
### 4. Tank: A-101
### 5. Riser: 24
### 6. Segment: 8
### 7. Core: 156
### 8. Cask Serial Number: 1037

### Radiation Survey Data:

<table>
<thead>
<tr>
<th>Field</th>
<th>Field</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>0.5 mR/hr</td>
<td>2.5</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>2.5 mR/hr</td>
<td>22</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>1.0 mR/hr</td>
<td>20</td>
</tr>
<tr>
<td>Smeared Contamination</td>
<td>220 (Alpha)</td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>1,000 (Beta-Gamma)</td>
<td>1K</td>
</tr>
</tbody>
</table>

**RC**

**HPT**

**Signature**

### Field Comments:

**LIBER ADDED TO DRILL STRING FOR HEAD FLUID.**

### Laboratory Comments:

**INFORMATION** (Include statement of laboratory tests to be performed.)

### (11) INFORMATION (Include statement of laboratory tests to be performed.)

### (12) Field Comments

**LIBER ADDED TO DRILL STRING FOR HEAD FLUID.**

### (13) Point of Origin: A-101
### (14) Destination: 222-3
### (15) Sender Name (Sign and PRINT): Steven B. Center
### (16) Date/Time: 8-23-96 14:00
### (17) Sender Comments:

### (18) Seal Intact Upon Release? [ ] Yes [ ] No
### (19) Seal Intact Upon Receipt? [ ] Yes [ ] No
### (20) Received By (Sign and PRINT):

### (21) Date/Time: 8-23-96 14:05
### (22) Receiver Comments:

### (23) Seal Data Consistent with this Record? [ ] Yes [ ] No
### (24) Received By (Sign and PRINT):

### (25) Date/Time: 8-25-96
### (26) Receiver Comments:

### Distribution:

- White - Office of Sample Management
- Yellow - Recipient of Sample
- Pink - Core Sampling, S6-85
- Goldenrod - Tank Farm Operations, S4-43

**COPY**
# RGS Chain-of-Custody Record for Core Sampling

<table>
<thead>
<tr>
<th>Information</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipment Number</td>
<td>3440-09-1F</td>
</tr>
<tr>
<td>Sample Number</td>
<td>96-924547</td>
</tr>
<tr>
<td>Supervisor</td>
<td>H. C. Jones</td>
</tr>
<tr>
<td>Tank</td>
<td>A-101</td>
</tr>
<tr>
<td>Row</td>
<td>84</td>
</tr>
<tr>
<td>Segment</td>
<td>9</td>
</tr>
<tr>
<td>Core</td>
<td>156</td>
</tr>
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<td>Cask Serial Number</td>
<td>80-11-196</td>
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<tr>
<td>Laboratory</td>
<td>D-5</td>
</tr>
<tr>
<td>Over Top Dose Rate</td>
<td>4S.0</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>30</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>15</td>
</tr>
<tr>
<td>Entry Time</td>
<td>11/21/96</td>
</tr>
<tr>
<td>Entry Time</td>
<td>08:59:38</td>
</tr>
<tr>
<td>Shipment Description</td>
<td>ES-96-00017</td>
</tr>
<tr>
<td>A. Work Package Number</td>
<td>102457</td>
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<tr>
<td>B. Cask Seal Numbers</td>
<td>RGS-031</td>
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<tr>
<td>C. Sampler Serial Number</td>
<td>7-27-96, 10150</td>
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<tr>
<td>D. Date and Time Sampler Unseamed</td>
<td>11/21/96, 08:59:38</td>
</tr>
<tr>
<td>E. Expected Liquid Content</td>
<td>30%</td>
</tr>
<tr>
<td>F. Expected Solid Content</td>
<td>70%</td>
</tr>
<tr>
<td>G. Dose Rate Through Drill String</td>
<td>1.3 E/R</td>
</tr>
<tr>
<td>H. Expected Sample Length</td>
<td>19&quot;</td>
</tr>
</tbody>
</table>

---

## 112 Field Command

**RGS sample:**

Lift added to drill string for hard field.

---

## 142 Laboratory Comments

**RGS sample:**

Lift added to drill string for hard field.

---

## 152 Shipping Comments

**RGS sample:**

Lift added to drill string for hard field.
# Chain-of-Custody Record for Core Sampling

**Bogen**

<table>
<thead>
<tr>
<th>(1) Shipment Number</th>
<th>(2) Sample Number</th>
<th>(3) Supervisor</th>
<th>(4) Tank</th>
<th>(5) Riser</th>
<th>(6) Segment</th>
<th>(7) Core</th>
<th>(8) Cask Serial Number</th>
</tr>
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<tbody>
<tr>
<td>200W-02TF</td>
<td>96-346</td>
<td>156</td>
<td>A-101</td>
<td>24</td>
<td>11</td>
<td>62</td>
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</table>

## Radiation Survey Data:

<table>
<thead>
<tr>
<th>Field</th>
<th>Alpha Contamination</th>
<th>Beta-Gamma Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>&lt; 1 MREM/HR</td>
<td>&lt; 1000</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>&lt; 1 MREM/HR</td>
<td>&lt; 1000</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>&lt; 20 MREM/HR</td>
<td>&lt; 1000</td>
</tr>
<tr>
<td>Smearable Contamination</td>
<td>&lt; 80 MREM/HR</td>
<td>&lt; 1000</td>
</tr>
</tbody>
</table>

**Field Comments:**

```
WATER W/LIBR USED AS HEAD FLUID
```
# Chain-of-Custody Record for Core Sampling

**(1) Shipment Number: 200W-02 TP**  
**(2) Sample Number: 96-347**  
**(3) Supervisor: M. C. JONES**  
**(4) Tank: A-101**  
**(5) Riser: 24**  
**(6) Segment: 12**  
**(7) Core: 150**  
**(8) Cask Serial Number: C-1055**

## Radiation Survey Data

<table>
<thead>
<tr>
<th>Field</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>1 µrem/hr</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>35 µrem/hr</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>120 µrem/hr</td>
</tr>
<tr>
<td>Measurable Contamination</td>
<td>6,000 (Alpha)</td>
</tr>
<tr>
<td></td>
<td>1 K (Beta-Gamma)</td>
</tr>
</tbody>
</table>

**RCT** (HPT)  
*Signature*

**RCT** (HPT)  
*Signature*

## Information
(Include statement of laboratory tests to be performed.)

Sample was X-rayed and looked like it was full of liquid. Libr was added to drill string for head fluid.

## Field Comments

Sample was X-rayed and looked like it was full of liquid. Libr was added to drill string for head fluid.

## Laboratory Comments

### (10) Shipment Description
- **A. Work Package Number:** ES-96-00443
- **B. Cask Seal Number:** 10295
- **C. Sampler Serial Number:** 96-022
- **D. Date and Time Sampler Unsealed:** 7-24-96 / 01-30
- **E. Expected Liquid Content:** 100%
- **F. Expected Solid Content:** 0%
- **G. Dose Rate Through Drill String:** 450 mCi/hr
- **H. Expected Sample Length:** 19'

---

**WHC-SD-WM-DP-200, REV:0**

**COPY**
<table>
<thead>
<tr>
<th>Field</th>
<th>Over Top Dose Rate</th>
<th>Side Dose Rate</th>
<th>Bottom Dose Rate</th>
<th>Nearableable Contamination</th>
<th>Isotopic Contamination</th>
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<tbody>
<tr>
<td></td>
<td>0.7</td>
<td>4.0</td>
<td>11</td>
<td>&lt;20</td>
<td>(&lt;Alpha&gt; 1000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.0</td>
<td></td>
<td></td>
<td>(&lt;Alpha&gt; 1000)</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(&lt;Beta-Gamma&gt; 1000)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(&lt;Beta-Gamma&gt; 1000)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) INFORMATION (Include statement of laboratory tests to be performed.)

2) Field Comments

Libr added to drill string for heat shield.

3) Point of Origin

4) Destination

5) Requisitioned By (Sign and PRINT)

6) Received By (Sign and PRINT)

7) Requisitioned By (Sign and PRINT)

8) Received By (Sign and PRINT)

9) Requisitioned By (Sign and PRINT)

10) Received By (Sign and PRINT)

11) Requisitioned By (Sign and PRINT)

12) Received By (Sign and PRINT)

13) Requisitioned By (Sign and PRINT)

14) Received By (Sign and PRINT)

15) Sender Name (Sign and PRINT)

16) Date/Time

17) Sender Comments

18) Date/Time

19) Receiver Comments

20) Date/Time

21) Receiver Comments

22) Date/Time

23) Receiver Comments

24) Date/Time

25) Receiver Comments

26) Date/Time

27) Receiver Comments

28) Date/Time

29) Receiver Comments

30) Date/Time

31) Receiver Comments

32) Seal Data Consistent with this Record?

33) Seal Intact Upon Receipt?

34) Laboratory Comments

35) Seal Intact Upon Release?

36) Seal Intact Upon Receipt?
### CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

<table>
<thead>
<tr>
<th>(1) Shipment Number</th>
<th>200W-08-TF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Sample Number</td>
<td>96-349</td>
</tr>
<tr>
<td>(3) Supervisor</td>
<td>Bogen</td>
</tr>
<tr>
<td>(4) Tank</td>
<td>A-101</td>
</tr>
<tr>
<td>(5) Riser</td>
<td>2F</td>
</tr>
<tr>
<td>(6) Segment</td>
<td>14</td>
</tr>
<tr>
<td>(7) Core</td>
<td>150</td>
</tr>
<tr>
<td>(8) Cask Serial Number</td>
<td>C1047</td>
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#### Radiation Survey Data:

<table>
<thead>
<tr>
<th>Field</th>
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<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>6.5</td>
</tr>
<tr>
<td>Side Dose Rate</td>
<td>80</td>
</tr>
<tr>
<td>Bottom Dose Rate</td>
<td>40</td>
</tr>
<tr>
<td>Smearable Contamination</td>
<td>220</td>
</tr>
<tr>
<td>(Alpha)</td>
<td>≤20</td>
</tr>
<tr>
<td>(Beta-Gamma)</td>
<td>≤1K</td>
</tr>
</tbody>
</table>

#### Information (include statement of laboratory tests to be performed.)

- WATER w/LIBR used as HEAD FLUID.

#### Field Comments

- (12) Field Comments

- (24) Laboratory Comments

#### Point of Origin

- (13) Point of Origin: A-101
- (14) Destination: 222-S
- (16) Date/Time: 08/22/96
- (17) Sender Comments: James Sickles

#### Requisition

- (19) Requisition By: James Sickles
- (21) Date/Time: 08/24/96
- (22) Receiver Comments: Michael Lindberg

#### Reconciliation

- (23) Reconciled By: James Sickles
- (25) Date/Time: 09/25/96
- (26) Receiver Comments: Michael Lindberg

#### Sample Intact Upon Release

- Yes

#### Sample Intact Upon Receipt

- Yes

#### Shipment No.

- Yes

#### Cask Seal No.

- Yes

#### Sample No.

- Yes

#### DISTRIBUTION:

- White - Office of Sample Management
- Yellow - Recipient of Sample
- Pink - Core Sampling, S6-85
- Goldenrod - Tank Farm Operations, S4-43
CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING

[Document content]
**CHAIN-OF-CUSTODY RECORD FOR CORE SAMPLING**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tbody>
<tr>
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<td>2003-22-77</td>
</tr>
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<td>Sample Number</td>
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</tr>
<tr>
<td>Supervisor</td>
<td>Patrick Smith</td>
</tr>
<tr>
<td>Tank</td>
<td>A-101</td>
</tr>
<tr>
<td>Placer</td>
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<td>Segment</td>
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<tr>
<td>Core</td>
<td>156</td>
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<td>Cask Serial Number</td>
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<table>
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<tr>
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<tr>
<td>Over Ton Date Rate</td>
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</tr>
<tr>
<td>Side Date Rate</td>
<td>15</td>
</tr>
<tr>
<td>Bottom Date Rate</td>
<td>2.2</td>
</tr>
<tr>
<td>Separable Contamination</td>
<td>LTR</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Field</th>
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<tbody>
<tr>
<td>A. Work Package Number</td>
<td>00-96-0049.3</td>
</tr>
<tr>
<td>B. Cask Seal Number</td>
<td>10340</td>
</tr>
<tr>
<td>C. Sampler Serial Number</td>
<td>RGS-037</td>
</tr>
<tr>
<td>D. Date and Time Sampler Unloaded</td>
<td>7-24-96 20:32</td>
</tr>
<tr>
<td>E. Expected Liquid Contents</td>
<td>30%</td>
</tr>
<tr>
<td>F. Expended Solid Contents</td>
<td>70%</td>
</tr>
<tr>
<td>G. Core Rate Through Kill String</td>
<td>1.8</td>
</tr>
<tr>
<td>H. Expected Sample Length</td>
<td>19.1</td>
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119

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>RGS Sample</td>
<td>1500 ml lithium bromide added</td>
</tr>
<tr>
<td>Sample Clean</td>
<td>No Liquid</td>
</tr>
<tr>
<td>19 K-RAY</td>
<td>Mostly Liquid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Core</td>
<td>A-101</td>
</tr>
<tr>
<td>Destination</td>
<td>2328 Lab</td>
</tr>
<tr>
<td>99% Silver Chloride 7-25-96</td>
<td></td>
</tr>
<tr>
<td>Received By</td>
<td>Jayne Rickenberry 7-25-96</td>
</tr>
<tr>
<td>Released By</td>
<td>Jayne Rickenberry 7-25-96</td>
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<tr>
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</tr>
<tr>
<td>Released Comments</td>
<td>7-25-96</td>
</tr>
</tbody>
</table>

**SIGNATURES**

**INFORMATION**

Include statement of laboratory tests to be performed.

**DISTRIBUTION:**

White - Office of Sample Management
Yellow - Resident of Sample
Pink - Core Sampling, EB-52
Gold - Task Farm Operations, EB-43
SC-5000-J05 (07.29.94)
## Chain-of-Custody Record for Core Sampling

<table>
<thead>
<tr>
<th>Field</th>
<th>Laboratory</th>
<th>Shipment Description</th>
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</thead>
<tbody>
<tr>
<td>Over Top Dose Rate</td>
<td>0.5</td>
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<td>Side Dose Rate</td>
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<tr>
<td>Bottom Dose Rate</td>
<td>14</td>
<td>96-039</td>
</tr>
<tr>
<td>Smearable Contamination (Alpha)</td>
<td>&lt;20</td>
<td>7-25-96/0140</td>
</tr>
<tr>
<td>Smearable Contamination (Beta-Gamma)</td>
<td>&lt;1000 &lt;1000</td>
<td>90%</td>
</tr>
<tr>
<td>RCT* (HPT)</td>
<td>Cooper</td>
<td>10%</td>
</tr>
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</table>

**Field Comments:**

Y-RAY showed sampler had liquid in it. Libr added to drill string for head fluid.

**Point of Origin:** A-101

**Destination:** 222-5

**Sender Name:** James Sickel

**Date/Time:** 7-26-96

**Sender Comments:**

**Receiving Comments:**

**Retransmission:**

**Retransmission:**

**Seal Intact Upon Release? Yes**

**Seal Intact Upon Receipt? Yes**

**Shipment No.**

**Cask Seal No.**

**Sample No.**
INORGANIC ANALYSES
LABCORE Data Entry Template for Worklist# 11902

Analyst: R ¥ Instrument: DSCO↑ Book # 12NI4B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>1 STD</td>
<td>1 STD</td>
<td>2 STD</td>
<td>DSC-01</td>
<td></td>
<td></td>
<td>LIQUID</td>
<td>28.45</td>
<td>26.1</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>s96t004110</td>
<td>0</td>
<td></td>
<td>DSC-01</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
<td>s96t004110</td>
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<td>DSC-01</td>
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<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>4 SAMPLE</td>
<td>s96t004115</td>
<td>0</td>
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<td>DSC-01</td>
<td></td>
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<td></td>
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<tr>
<td>96001016</td>
<td>A-101 (P)</td>
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</table>

Final page for worklist # 11902

Signatures:
- Analyst Signature: 8-15-96
- Date: 8/15/96
- Analyst Signature: 8/20/96
- Date: 8/20/96

Verfied/Validated by Blandina Valenzuela 8-22-96

Data Entry Comments:

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration
Delta H17932 mJ
1380.4 J/g
Peak 101.3°C
-77.2 mW
Integration
Delta H 731 mJ
26.1 J/g
Peak 257.0°C
5.8 mW

Integration
Delta H 390 mJ
13.9 J/g
Peak 338.5°C
-1.4 mW

Integration
Delta H 34062 mJ
1210.1 J/g
Peak 195.3°C
-69.9 mW
28.251 mg
Rate: 10.0 °C/min
Ident: 0.0

Integration
Delta H 721 mJ
25.5 J/g
Peak 257.0°C
5.8 mW

Integration
Delta H 243 mJ
8.6 J/g
Peak 332.6°C
-1.0 mW

Integration
Delta H 33514 mJ
1186.3 J/g
Peak 139.4°C
-69.2 mW
**LABCORE Data Entry Template for Worklist # 11903**

**Analyst:** [Name]  **Instrument:** DSC0  **Book #:** 12N14-B

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
<th>-------</th>
<th>TEST------</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 STD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001016</td>
<td>A-101</td>
<td>(P) 2</td>
<td>S96T004116</td>
<td>0</td>
<td>DSC-01</td>
<td>LIQUID</td>
<td>28.45</td>
<td>25.8</td>
<td>N/A</td>
<td>Joules/g</td>
<td></td>
</tr>
<tr>
<td>96001016</td>
<td>A-101</td>
<td>(P) 3</td>
<td>S96T004116</td>
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<td>DSC-01</td>
<td>LIQUID</td>
<td>29.7</td>
<td>30.8</td>
<td>N/A</td>
<td>Joules/g</td>
<td></td>
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<tr>
<td>96001016</td>
<td>A-101</td>
<td>(P) 4</td>
<td>S96T004117</td>
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<td>DSC-01</td>
<td>LIQUID</td>
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<td>30.2</td>
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<td>Joules/g</td>
<td></td>
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<tr>
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<td>A-101</td>
<td>(P) 5</td>
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</table>

**Final page for worklist # 11903**

**Analyst Signature** [Name]  **Date** 8-14-96

**Verified/Validated by** Blandina Valenmeka  **Date** 8-31-96

S96T004116 results are the sum of two exotherms.  
S96T004117 results are the sum of two exotherms.

**Data Entry Comments:**  
The standard has a change in baseline due to the instrument equilibrating to the right temperature.

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
STD 12N14-B N2
4.510 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 116 mJ
25.8 J/g
Peak 157.8°C
-9.0 mW

Integration
S96T004117 DUP N2

File: 00028.001  DSC METTLER  14-Aug-96
Ident: 0.0  222-5 Laboratory

26.065 mg  Rate: 10.0 °C/min

Peak:
- 255.0°C  4.6 mW
Integration
Delta H 523 mJ
20.1 J/g

- 126.2°C  -54.1 mW
Integration
Delta H 25966 mJ
996.6 J/g

- 294.7°C  1.2 mW
Integration
Delta H 263 mJ
10.1 J/g
LABCORE Data Entry Template for Worklist# 11904

Analyst: QAM Instrument: DSCO Book # 12N4-6

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>1 STD</td>
<td>DSC-01</td>
<td>J</td>
<td></td>
<td>DSC-01</td>
<td>LIQUID</td>
<td>28.45</td>
<td>25.8</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S961004118</td>
<td>0</td>
<td>DSC-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>29.5</td>
<td>Joules/g</td>
<td></td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>3 DUP</td>
<td>S961004118</td>
<td>0</td>
<td>DSC-01</td>
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<td>29.4</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
</tbody>
</table>

Final page for worklist # 11904

C. Murphy 8-14-96

Verified / Validated by
Blandina Valenzuela 8-21-96

Data Entry Comments: The change in the baseline is due to the instrument equilibrating to the right temperature.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration

Delta H 116 mJ
25.8 J/g
Peak 157.8°C
-9.0 mW
Integration
Delta H 641 mJ
21.8 J/g
Peak 258.5°C
6.3 mW

Integration
Delta H 225 mJ
6.7 J/g
Peak 300.1°C
1.2 mW

Integration
Delta H 38305 mJ
1303.5 J/g
Peak 127.3°C
-67.5 mW
Integration
Delta H 735 mJ
22.7 J/g
Peak 261.1 °C
7.3 mW

Integration
Delta H 217 mJ
6.7 J/g
Peak 306.6 °C
1.1 mW

Integration
Delta H 41043 mJ
1265.8 J/g
Peak 127.3 °C
-72.1 mW
**LABCORE Data Entry Template for Worklist# 11905**

**Analyst:** [Signature]  
**Instrument:** DSCO  
**Method:** LA-514-113 Rev/Mod  
**Book #** 12N14-B  
**Worklist Comment:** A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
<th>TEST</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>1 STD</td>
<td>DSC-01</td>
<td></td>
<td></td>
<td>SOLID</td>
<td>28.45</td>
<td>28.2</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S96T004067 0</td>
<td>DSC-01</td>
<td>SOLID</td>
<td></td>
<td>N/A</td>
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<td>Joules/g</td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
<td>S96T004067 0</td>
<td>DSC-01</td>
<td>SOLID</td>
<td></td>
<td>52.6</td>
<td>63.3</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>4 SAMPLE</td>
<td>S96T004072 0</td>
<td>DSC-01</td>
<td>SOLID</td>
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<td>115</td>
<td></td>
<td>Joules/g</td>
</tr>
<tr>
<td>96001016</td>
<td>A-101 (P)</td>
<td>5 DUP</td>
<td>S96T004072 0</td>
<td>DSC-01</td>
<td>SOLID</td>
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<td>115</td>
<td>137</td>
<td>N/A</td>
<td>Joules/g</td>
</tr>
</tbody>
</table>

---

**Final page for worklist # 11905**

**Analyst Signature** 8/15/96  
**Date**

Verified/Validated by  
Blandina Valenzuela 8-21-96

**Data Entry Comments:**  
S96T004067 results are the sum of two weight loss step. 8-21-96  
S96T004072 results are the sum of two exotherms.

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration
Delta H 127 mJ
28.2 J/g
Peak 158.7°C
-8.7 mW

Blandina Valenzuela for Ann Lambel 8-21-96
Integration
Delta H 1015 mJ
901.1 J/g
Peak 312.8°C
2.6 mW

Integration
Delta H 184 mJ
9.7 J/g
Peak 248.7°C
1.3 mW

10.935 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory
Integration
Delta H 124 mJ
6.4 J/g
Peak 252.7°C
1.3 mW

Integration
Delta H 2510 mJ
130.3 J/g
Peak 408.9°C
4.7 mW

Integration
Delta H 17299 mJ
897.9 J/g
Peak 137.3°C
-30.5 mW
**LABCORE Data Entry Template for Worklist# 11906**

**Analyst:** [Name]  
**Instrument:** DSCO 3  
**Method:** LA-514-114  
**Book #** 12N14B

**Worklist Comment:** A-101. Run under NITROGEN. New

<table>
<thead>
<tr>
<th>Seg</th>
<th>Type</th>
<th>Sample#</th>
<th>Rep Al</th>
<th>Test</th>
<th>Matrix</th>
<th>Actual</th>
<th>Found</th>
<th>DL</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STD</td>
<td>S96T004073</td>
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<td>DSC-03</td>
<td>SOLID</td>
<td>28.45</td>
<td>29.26</td>
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<td>Joules/</td>
</tr>
<tr>
<td>2</td>
<td>SAMPLE</td>
<td>S96T004073</td>
<td>0</td>
<td>DSC-03</td>
<td>SOLID</td>
<td>N/A</td>
<td>0</td>
<td></td>
<td>Joules/</td>
</tr>
<tr>
<td>3</td>
<td>DUP</td>
<td>S96T004073</td>
<td>0</td>
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<td>SOLID</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>4</td>
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<td>N/A</td>
<td>Joules/</td>
</tr>
</tbody>
</table>

**Final page for worklist # 11906**

Verified/Validated by: Blandina Valenzuela  
8-21-96

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units.

worklist.rpt Version 1.0 11/23/94

Page: 1
**LABCORE Data Entry Template for Worklist# 11906**

**Analyst:**

**Instrument:** DSC0 3

**Book #: 12N/4-B**

**Method:** LA-514-113 Rev/Mod

**Worklist Comment:** A-101. Run under NITROGEN. new

<table>
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<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
<th>A ----TEST------</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
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<td>DSC-01</td>
<td>SOLID</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>96001016 A-101 (P) 2 SAMPLE</td>
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<td>Joules/g</td>
</tr>
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<td>S96T004073 0</td>
<td>DSC-01</td>
<td>SOLID</td>
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<td>S96T004074 0</td>
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<td>Joules/g</td>
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</table>

**Final page for worklist # 11906**

**Analyst Signature**

A. Lambert 08/15/95

**Date**

**Analyst Signature**

**Date**

DSC-03 Instrument was used.

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: DSC
File info: INDO81501 Thu Aug 15 06:26:22 1996
Sample Weight: 2.120 mg
12N14-8 INDIUM AT 10C/MIN

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>X1</td>
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</tr>
<tr>
<td>X2</td>
<td>160.100 °C</td>
</tr>
<tr>
<td>Peak</td>
<td>157.828 °C</td>
</tr>
<tr>
<td>Area</td>
<td>62.030 mJ</td>
</tr>
<tr>
<td>ΔH</td>
<td>29.259 J/g</td>
</tr>
<tr>
<td>Height</td>
<td>8.510 mW</td>
</tr>
<tr>
<td>Onset</td>
<td>156.820 °C</td>
</tr>
</tbody>
</table>

**N2, EXOTHERM DOWN**

**Haze** 120.8 °C **Times** 0.0 min **Rate** 10.0 °C/min

EA LAMBEI
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 15 06:58:05 1996
Curve 1: DSC

File info: SAM081502 Thu Aug 15 09:56:30 1996
Sample Weight: 28.890 mg
S98T004073

- Onset 43.08 °C
- ΔH 1070.79 J/g
- Peak 131.62 °C
- Peak 273.97 °C
- ΔH 40.09 J/g
- Onset 253.36 °C
- ΔH 105.65 J/g
- Onset 406.83 °C

Temperature (°C)
Heat Flow (mW)
Curve 1: DSC
Sample Weight: 25.230 mg
SS6T004073 DUP

Onset 112.73 °C
ΔH 1133.51 J/g
Peak 138.59 °C

Onset 255.1 °C

Onset 339.0 °C
Peak 380.96 °C
ΔH 43.81 J/g

N2 10°C/min
TIME: 0.0 min RATE: 10.0 g/min

EA LAMBEL
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 15 14:01:17 1996
Onset 43.65 °C

ΔH 995.32 J/g

Peak 130.63 °C
LABCORE Data Entry Template for Worklist# 11907

Analyst: [Redacted]  Instrument: DSC01  Book #: 12A/4B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
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<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>TEST</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
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</thead>
<tbody>
<tr>
<td>1 STD</td>
<td>DSC-01</td>
<td>SOLID</td>
<td>28.45</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>2 SAMPLE</td>
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<td>SOLID</td>
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<td>Joules/g</td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>96001016 A-101 (P)</td>
<td>4 SAMPLE</td>
<td>S961004076 0</td>
<td>DSC-01</td>
<td>SOLID</td>
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<td>19.2</td>
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<td></td>
<td>Joules/g</td>
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<tr>
<td>96001016 A-101 (P)</td>
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<td>Joules/g</td>
<td></td>
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</table>

Final page for worklist # 11907

Analyst Signature: [Redacted]  Date: 8/16/96

Verified/Validated by:

Blandina Valenzuela  8/21/96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14B

4.510 mg
Rate: 10.0 °C/min

File: 00049.001
DSC METTLER 15-Aug-96
Ident: 0.0
222-S Laboratory
B J. McCown 5/16/96

Integration
Delta H 129 mJ
28.7 J/g
Peak 158.7°C
9.0 mW
Integration
Delta 16.0 mJ
Peak 5.6 °C
Int 639 mJ

Integration
Delta 127.3 mJ
Peak -60.8 mW
Int 30614 mJ

Rate: 10.0 °C/min

File: 09054.004
DSC METTLER
15-Aug-96

Exo

S96T004075 N2
39.835 mg

Ident: 0.0
222-S Laboratory
Integration
Delta H 604 mJ
22.1 J/g
Peak 261.0°C
5.0 mW

Integration
Delta H 25952 mJ
948.0 J/g
Peak 135.3°C
-55.4 mW
S96T004076 DUP N2

34.675 mg

Rate: 10.0 °C/min

Integration
Delta H 750 mJ
21.6 J/g
Peak 261.0°C
6.3 mW

Integration
Delta H 34842 mJ
1004.8 J/g
Peak 133.3°C
-66.1 mW
LABCORE Data Entry Template for Worklist# 11908

Analyst: *Jim*  
Instrument: DSC0 3  
Method: LA-514-114  
Book #: 12 N 148

Worklist Comment: A-101. Run under NITROGEN. new

<table>
<thead>
<tr>
<th>Seg Type</th>
<th>Sample#</th>
<th>Rep Al</th>
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<th>Matrix</th>
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<td>28.45</td>
<td>30.25*</td>
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</tr>
<tr>
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<td>S96T004077</td>
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<td>30.55</td>
<td></td>
<td>Joules/</td>
</tr>
<tr>
<td>3 DUP</td>
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<td>DSC-03</td>
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<td>19.34</td>
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Final page for worklist # 11908

Verified/Validated by

Blandina
Valenzuela
8-22-96

Analyst Signature

Date

Analyst Signature

Date

Data Entry Comments:

---

Units shown for QC (SPK & STD) may not reflect the actual units.
workliststp Version 1.0 11/23/94

Page: 1
LABCORE Data Entry Template for Worklist# 11908

Analyst: [Name]  Instrument: DSCO 3  Book # 12/3/96

Method: LA-514-113 Rev/Mod

Worklist Comment: A-101. Run under NITROGEN. new

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<td>Joules/g</td>
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<td>SOLID</td>
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<td>Joules/g</td>
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<tr>
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<td>SOLID</td>
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Final page for worklist # 11908

Analyst Signature: [Signature]  Date: 8/16/96

[Handwritten note:] DSC-03 Instrument was used.

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

161
Curve 1: DSC
File info: INDO81501 Thu Aug 15 06:26:22 1996
Sample Weight: 2.120 mg
12N14-8 INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES

Heat Flow (mW)
Curve 1: DSC
Sample Weight: 34.020 mg

Sample Weight: 34.020 mg

AH 1119.88 J/g
Peak 138.35 °C

Onset 44.7 °C

Onset 241.61 °C

Peak 257.28 °C
AH -31.91 J/g

N2 10°C/min
TIME: 0.0 min RATE: 10.0 °C/min

PJ MCCOWN
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 20 07:12:47 1996
Curve 1: OSC
File info: SAM081508 Thu Aug 15 23:02:19 1996
Sample Weight: 39.530 mg
S96T004078

Peak 140.59 °C
Onset 126.1 °C
Onset 246.49 °C
Peak 259.84 °C
ΔH -20.96 J/g

ΔH 1168.95 J/g

Temperature (°C)  PJ MCCOWN
N2 10°C/min PERKIN-ELMER
TIME: 0.0 min RATE: 10.0 °C/min 7 Series Thermal Analysis System
Tue Aug 20 07:23:29 1996
LABCORE Data Entry Template for Worklist# 12277

Analyst: Rdm          Instrument: DSC0 3          Book # 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: Please run A-101 DSCs under N2. bdv

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<th>SAMPLE#</th>
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<th>MATRIX</th>
<th>ACTUAL</th>
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<th>DL</th>
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</thead>
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<tr>
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<tr>
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<td>Joules/g</td>
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<td>DSC-03</td>
<td>0</td>
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<td>N/A</td>
<td>Joules/g</td>
<td></td>
</tr>
<tr>
<td>4 STD</td>
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<td></td>
<td></td>
<td></td>
<td>DSC-03</td>
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<td>Joules/g</td>
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</table>

Final page for worklist # 12277

**See attached for signatures**

Analyst Signature: 8-29-96

Verified/Validated by: 9-3-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
**LABCORE Data Entry Template for Worklist# 12277**

**Analyst:** [Sign]
**Instrument:** DSC0
**Book #** [Sign]

**Method:** LA-514-113 Rev/Mod \( \_/- \)

**Worklist Comment:** Please run A-101 DSCs under N2, bdv

<table>
<thead>
<tr>
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<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
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<th>DL</th>
<th>UNIT</th>
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<tr>
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<td>DSC-01</td>
<td>LIQUID</td>
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<td>N/A</td>
<td>Joules/g</td>
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<td>A-101 (P)</td>
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<td>Joules/g</td>
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<tr>
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<td>A-101 (P)</td>
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</table>

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**Final page for worklist # 12277**

**Analyst Signature**

**Date**

**Analyst Signature**

**Date**

\[ DSC - 03 \text{ instrument} \text{ was used.} \]

8.29.96

Blandina
Valentino

---

**Data Entry Comments:**

---

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 169 TO 174.
Curve 1: DSC
File info: SAM082701 Tue Aug 27 09:53:22 1996
Sample Weight: 17.630 mg

\[ \text{AH} = 1317.47 \text{ J/g} \]
Peak 129.03 °C

\[ \text{AH} = 203.6 \text{ J/g} \]
Peak 329.95 °C

Onset 45.0 °C
Onset 258.61 °C

N2 10°C/min
START time: 8 TIMES: 0.0 min RATE: 10.0 g/min

RO MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 27 11:34:23 1996
Curve 1: DSC
File info: IND062701 Tue Aug 27 05:54:19 1996
Sample Weight: 5.920 mg
12N14-B INDIUM AT 10C/MIN

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
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<td>Peak</td>
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<td>29.350 J/g</td>
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<td>Height</td>
<td>13.680 mW</td>
</tr>
<tr>
<td>Onset</td>
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</table>

N2, EXOTHERM DOWN
TIME: 0.0 min RATE: 10.0 °C/min
Curve 1: DSC
Sample Weight: 17.010 mg
995T004290

AH 1297.61 J/g
Peak 122.72 °C

Onset 44.08 °C

AH 145.64 J/g
Peak 278.61 °C

Onset 268.7 °C

N2 10°C/min
TIME 9:28:8 TIMES: 0.0 MIN RATE: 10.0 °C/min
Temperature (°C)
RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Aug 27 13:00:47 1996
LABCORE Data Entry Template for Worklist# 12326

Analyst: [Signature]  Instrument: DSC0  Book #: [1ZU14-S]

Method: LA-514-113 Rev/Mod [ ]

Worklist Comment: Please run A-101 DSCs under N2. bv

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Final page for worklist # 12326

Analyst Signature: [Signature]  Date: 8-30-94

Verified/Validated by: Blandina Valenzuela  Date: 9-6-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration
Delta H 120 mJ
26.6 J/g
Peak 158.0°C
-9.1 mW
Integration
Delta H 5654 mJ
607.3 J/g
Peak 125.9°C
-13.1 mW

Integration
Delta H 652 mJ
70.1 J/g
Peak 250.5°C
2.8 mW
Integration
Delta H 14945 mJ
940.4 J/g
Peak 122.8°C
-36.8 mW

Integration
Delta H 997 mJ
62.7 J/g
Peak 248.6°C
4.1 mW
I E 0 cu S96T004280 SAM N2
File: 00089.001 DSC METTLER 30-Aug-96
Iden: 0.0 222-S Laboratory

Integration
Delta H 859 mJ
51.7 J/g
Peak 251.3°C
4.1 mW

Integration
Delta H 9996 mJ
601.6 J/g
Peak 123.4°C
-29.2 mW
LABCORE Data Entry Template for Worklist# 12362

**Analyst:** BKY  
**Instrument:** DSC01  
**Book #**

**Method:** LA-514-113 Rev/Mod

**Worklist Comment:** Dry DSC for A-101. bdv

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**Data Entry Comments:**

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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**Final page for worklist # 12362**

*Data Entry Comments:*

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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LABCORE Data Entry Template for Worklist# 12363

Analyst: [Name]  Instrument: DSC01  Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSC for A-101, bdv

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Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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Final page for worklist # 12363

Blandina Valenzuela 10-7-96
Analyst Signature

Anastasia 10-8-96
Analyst Signature

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
### Calculated Dry DSC

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LABCORE Data Entry Template for Worklist# 12364

Analyst: bdy  Instrument: DSC01  Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSC for A-101. bdv

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Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
### LABCORE Data Entry Template for Worklist# 12364

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**Final page for worklist # 12364**

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Validated 10.8.96

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**Data Entry Comments:**

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*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*

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### Calculated Dry DSC

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LABCORE Data Entry Template for Worklist# 12365

Analyst: H&A  Instrument: DSC01  Book #

Method: LA-514-113 Rev/Mod

Worklist Comment: Dry DSC for A-101. bdv

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Final page for worklist # 12365

Analyst Signature: H&A  Date: 10.8.96

Validated by H&A  10.8.96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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LABCORE Data Entry Template for Worklist# 12366

**Analyst:** ________  **Instrument:** DSC01  **Book #** ________

**Method:** LA-514-113 Rev/Mod ________

**Worklist Comment:** Dry DSC for A-101. bdv

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**Data Entry Comments:**

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 12366

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Final page for worklist # 12366

Blandina Valpando 10-7-96
Analyst Signature  Date

Validated by NLA 10-8-96

---

Data Entry Comments:

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
### Calculated Dry DSC

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LABCORE Data Entry Template for Worklist# 13224

Analyst: STF  Instrument: DSC0  Book #: 12345

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13224

Analyst Signature: Susan M. Dutton  Date: 9-24-96

Verified/Validated by: Blandina Valenzuela  Date: 9-26-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14B
25.810 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 735 mJ
28.5 J/g
Peak 159.9°C
-32.4 mW

File: 00058.001 DSC METTLER 24-Sep-96
Integration
Delta H 726 mJ
45.2 J/g
Peak 252.8 °C
4.6 mW

Integration
Delta H 14617 mJ
911.0 J/g
Peak 132.6 °C
-38.6 mW
LABCORE Data Entry Template for Worklist# 13225

**Analyst:** SMF  **Instrument:** DSC0 3  **Book #** 12N14B

**Method:** LA-514-114 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Data Entry Comments:**

Sample S96T004584 results are the sum of two exotherms. Sharp peak (exotherm) is probably due to the decomposition of a pure substance. The high RPDs are due to sample inhomogeneity.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13225

Analyst: S2PF  Instrument: DSCO  Book #: 12N14-R

Method: LA-54-113 Rev/Mod

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ.

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Final page for worklist # 13225

Analyst Signature: Susan M. Delton  Date: 9-24-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

202
Curve 1: DSC

File info: INDO92401 Tue Sep 24 16:50:28 1996
Sample Weight: 6.580 mg

SIGNED 12N14-B INDIUM AT 10°C/MIN.

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 203 TO 207.

| X1   | 158.300 °C |
| X2   | 163.800 °C |
| Peak | 160.279 °C |
| Area | 185.211 mJ |
| AH   | 28.148 J/g |
| Height | 21.696 mW |
| Onset| 158.617 °C |

Temperature (°C) SN FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Sep 24 17:01:04 1996
Curve 1: DSC

File info: SAM092401 Tue Sep 24 18:19:41 1996
Sample Weight: 15.140 mg

Peak 133.5°C
ΔH 1064.08 J/g

Onset 45.41°C

Peak 214.16°C
ΔH -17.32 J/g
Onset 210.8°C

Peak 256.78°C
ΔH -48.86 J/g
Onset 234.89°C

N2 10C/min
TIME: 0.0 min RATES: 10.0 C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 10:04:13 1996
Curve 1: DSC
File info: SAM092402 Tue Sep 24 20:27:42 1996
Sample Weight: 13.810 mg
S9ST0049584 DUP

Heat Flow (mW)

Onset 45.46 °C
Peak 125.78 °C
\( \Delta H = 1038.63 \text{ J/g} \)

Onset 237.6 °C
Peak 257.37 °C
\( \Delta H = -39.3 \text{ J/g} \)

N2 10C/min TIMES: 6.0 min RATES: 10.0 g/min

7 Series Thermal Analysis System
SW FULTON
PERKIN-ELMER
Curve 1: DSC

Sample Weight: 15.100 mg

Heat Flow (mW)

Peak 131.15 °C

Onset 45.89 °C

AH 1038.85 J/g

Temperature (°C)

Onset 205.82 °C

Peak 208.53 °C

AH -20.55 J/g

Onset 233.88 °C

Peak 256.78 °C

AH -49.83 J/g

N2 100/min

TIME: 0.0 min RATE: 10.0 °C/min

SW FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 10:36:02 1996
LABCORE Data Entry Template for Worklist # 13226

**Analyst:** SMF  
**Instrument:** DSO 3  
**Book #:** 12NH1B

**Method:** LA-514-114 Rev/Mod C-1  
**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Final page for worklist # 13226**

See attached for signatures.  
Analyst Signature:  
Date: 9-24-96  
Verified/Validated by: Blandina Valentimela  
Date: 9-26-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13226

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Final page for worklist # 13226

Analyst Signature: Susan M. Dutton 9-24-96

Analyst comments:

DSC-03 instrument was used.

Date: 9-24-96

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: DSC
File info: INDO92401 Tue Sep 24 16:50:28 1996
Sample Weight: 6.580 mg
12N14-B INDIUM AT 10C/MIN

Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 210 to 214.

**Data:***
- X1: 158.300 °C
- X2: 163.800 °C
- Peak: 160.279 °C
- Area: 185.211 mJ
- AH: 28.148 J/g
- Height: 21.696 mW
- Onset: 158.617 °C

**Graph:***
- Temperature (°C) vs. Heat Flow (mW)
- N2, Exotherm Down
- Heat: 168.8 W
- Time: 0.0 min
- Rate: 10.0 °C/min
- 7 Series Thermal Analysis System

Signature: Susie K. Fulton 9-24-96
Curve 1: DSC

File Info: SAM92405 Wed Sep 25 00:26:50 1996
Sample Weight: 8.620 mg

Peak 112.44 °C
ΔH 941.32 J/g
Onset 45.59 °C

Peak 250.54 °C
ΔH -42.12 J/g
Onset 236.74 °C

N2 10C/min
HEAT 8 TIMES: 0.0 MIN RATES: 10.0 °C/min

SW FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 09:30:13 1996
Curve 1: DSC
Sample Weight: 18.150 mg
S96T004669DUP

Heat Flow (mW)

Temperature (°C)

Onset 46.03 °C
\[ \Delta H = 990.4 \text{ J/g} \]
Peak 124.0 °C

Onset 257.71 °C
\[ \Delta H = -44.86 \text{ J/g} \]
Peak 236.95 °C

N2 10C/min
Times 0.0 min Rates 10.0 C/min

SW FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 09:48:54 1996
LABCORE Data Entry Template for Worklist# 13227

Analyst: SMF Instrument: DSCO Book # 12N14-B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13227

Analyst Signature Date

Verified/Validated by

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14B
25.810 mg  Rate: 10.0 °C/min

Integration
Delta H 685 mJ
26.6 J/g
Peak 159.7°C
-30.3 mW

Blanca1a Valenzuela for Rob Meyers 10-14-96
**Integration**

Delta H\textsubscript{13222} mJ 

1217.5 J/g  

Peak 103.3°C  

-71.4 mW
Integration
Delta H16581 mJ
1629.4 J/g
Peak 103.3°C
-77.3 mW
Integration
Delta H17179 mJ
1666.6 J/g
Peak 105.3°C
-75.5 mW
LABCORE Data Entry Template for Worklist# 13228

Analyst:   Instrument:  DSCO   Book #: 1Z1K4B

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13228

Analyst Signature: Murphy 9-24-96  Analyst Signature: Keleight 9-26-96

Verified/Validated by: Brandina Valenzuela 9-26-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14B
25.810 mg
Rate: 10.0 °C/min

23-Sep-96
File: 00033.001
Ident: 0.0
222-S Laboratory

Integration
Delta H 654 mJ
25.3 J/g
Peak 159.7°C
-29.8 mW

110. 120. 130. 140. 150. 160. 170. °C

20. mW

Integration
Delta H 654 mJ
25.3 J/g
Peak 159.7°C
-29.8 mW
Integration
Delta H 494 mJ
17.2 J/g
Peak 244.6°C
3.1 mW

Integration
Delta H28115 mJ
976.2 J/g
Peak 107.3°C
-68.6 mW
Integration
Delta H 644 mJ
31.4 J/g
Peak 242.5°C
2.9 mW

Integration
Delta H22779 mJ
1110.8 J/g
Peak 109.3°C
-67.7 mW
LABCORE Data Entry Template for Worklist# 13236

**Analyst:** RDM  **Instrument:** DSC0 3  **Book #: 12NJ148**

**Method:** LA-514-114 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Final page for worklist # 13236**

*See attached for signatures*

**Analyst Signature**  **Date** 10-1-96

**Analyst Signature**  **Date**

---

**Data Entry Comments:**

*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*
LABCORE Data Entry Template for Worklist# 13236

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Final page for worklist # 13236

Analyst Signature: [Signature]  Date: 9-25-96

DSC-03 instrument was used: 10-1-96

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: DSC
File info: INDO92501 Wed Sep 25 05:24:40 1996
Sample Weight: 6.580 mg

12N14-8 INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 227 TO 231.

<table>
<thead>
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<td>X2</td>
<td>163.666 °C</td>
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<tr>
<td>Peak</td>
<td>160.162 °C</td>
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<tr>
<td>Area</td>
<td>183.123 mJ</td>
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<tr>
<td>ΔH</td>
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<tr>
<td>Height</td>
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<tr>
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Blandina Valenzuela for RD Meyers 10-14-96

N2, EXOTHERM DOWN

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RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 06:16:54 1996
Sample Weight: 43.750 mg

AH 343.61 J/g
Peak 147.86 °C

AH 31.78 J/g
Peak 274.78 °C
Onset 205.46 °C
Onset 112.29 °C

N2 10C/min
90.0 min RATE: 40.0 g/min

7 Series Thermal Analysis System
RD MEYERS
PERKIN-ELMER
Curve 1: DSC

- Sample Weight: 40.770 mg

Heat Flow (mW)

Temperature (°C)

Onset 127.53 °C

Peak 140.69 °C

ΔH 1059.6 J/g

Onset 238.68 °C

Peak 268.79 °C

ΔH -129.4 J/g

N2 10°C/min

TEMPE: 35.0 °C

TIME: 0.0 min

RATE: 10.0 °C/min

RD MEYERS

PERKIN-ELMER

7 Series Thermal Analysis System

Mon Sep 30 13:00:32 1996
Curve 1: DSC

File info: SAM092506 Wed Sep 25 17:38:02 1996
Sample Weight: 19.280 mg
S96T004545 DUP

N2 10C/min TEMPE 20.8°C TIMES: 0.0 min RATE: 10.0 C/min

Peak 139.86 °C
ΔH 756.58 J/g

Peak 277.08 °C
ΔH 26.98 J/g

Onset 256.16 °C

Onset 45.34 °C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Oct 9 07:01:03 1996
LABCORE Data Entry Template for Worklist# 13237

Analyst: SMF Instrument: DSCO 3 Book # 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13237

See attached for signatures

Verified/Validated by
Blandina Valenzuela

Data Entry Comments:
S96T004547 results are the sum of two exotherms.
The high RPD's are due to sample inhomogeneity.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13237

**Analyst:** SHF  
**Instrument:** DSC0  
**Book #:** 12U14B

**Method:** LA-514-113 Rev/Mod

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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<tr>
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<td>SOLID</td>
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<td>Joules/g</td>
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**Final page for worklist # 13237**

_Susie M. Ocken 9-25-96_

**Data Entry Comments:**

_DSC-03 instrument was used. 10-1-96_  
_Blandina Valenzuela_

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
**Curve 1: DSC**

**File info:** ID003250! Wed Sep 25 05:40 1996

Sample Weight: 6.560 mg

**12X14-B INDUIN AT 10C/Min.**

Signature below represents chemical technologist/Chemist that completed/verified the calibration/analysis on pages A34 to A38.

<table>
<thead>
<tr>
<th>X1</th>
<th>158.033 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>163.386 °C</td>
</tr>
<tr>
<td>Peak</td>
<td>160.162 °C</td>
</tr>
<tr>
<td>Area</td>
<td>163.129 mJ</td>
</tr>
<tr>
<td>ΔH</td>
<td>27.830 J/g</td>
</tr>
<tr>
<td>Height</td>
<td>21.739 mW</td>
</tr>
<tr>
<td>Onset</td>
<td>156.502 °C</td>
</tr>
</tbody>
</table>

**No. Exotherm Down**

Time 16:32

Rate 0.0 mR/min

R. D. MEYERS
Perkin-Elmer
7 Series Thermal Analysis System

Wed Sep 25 06:16:54 1996
Curve 1: DSC
Sample weight: 24.330 mg
SST004546

| X1  | 46.200 °C |
| X2  | 311.288 °C |
| Peak| 151.843 °C |
| Area| 18029.456 mJ |
| ΔH  | 741.038 J/g |
| Height| 23.541 mW |
| Onset| 140.703 °C |

N2 10°C/min
TIME: 0.0 min RATE: 10.0 °C/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 19:35:27 1996
Curve 1: DSC
Sample Weight: 37.550 mg
S961004546 DUP

<table>
<thead>
<tr>
<th>X1</th>
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Curve 1: DSC
Sample Weight: 34.030 mg

Sample Weight: 34.030 mg

Heat Flow (mW)

Onset 114.47 °C
Peak 139.42 °C

Peak 257.69 °C
ΔH = -17.61 J/g
Onset 242.28 °C

Peak 338.48 °C
ΔH = -54.68 J/g
Onset 289.26 °C

N2 10°C/min
Time: 0.0 min Rates: 10.0 °C/min

7 Series Thermal Analysis System
LABCORE Data Entry Template for Worklist# 13238

Analyst: [Signature]  Instrument: DSCO  Book # 82NOA

Method: LA-514-113 Rev/Mod C

Worklist Comment: A-101 DSC, RUN UNDER N2, RCJ

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<thead>
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<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
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<td>96001049</td>
<td>A-101 (P)</td>
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Final page for worklist # 13238

Analyst Signature: [Signature]  Date: 9/26/96

Verified/Validated by

Brandina Valen, Ph.D.  9/26/96

Data Entry Comments:

S96T004548 (duplicate results) are the sum of two exotherms. The sharp exotherm occurring at approximately 230°C is probably due to the decomposition of a fairly pure substance.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
25.810 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H  715 mJ
27.7 J/g
Peak  159.5 °C
-32.7 mW

File: 00068.001

DSC METTLER 25-Sep-96
S96T004548 N2
17.700 mg
Rate: 10.0 °C/min
Ident: 0.0
222-8 Laboratory

Integration
Delta H 23784 mJ
1343.8 J/g
Peak 136.3°C
-49.3 mW

Integration
Delta H 406 mJ
22.9 J/g
Peak 256.8°C
3.3 mW
File: 00072.001  DSC METTLER  25-Sep-96

S96T004548 DUP N2
14.040 mg  Rate: 10.0 °C/min

Integration
Delta H 152 mJ
Peak 208.7°C
10.8 J/g
4.3 mW

Integration
Delta H 689 mJ
Peak 252.7°C
49.1 J/g
4.1 mW

Integration
Delta H 15787 mJ
Peak 132.8°C
1124.5 J/g
-36.5 mW
LABCORE Data Entry Template for Worklist# 13260

Analyst: sw Instrument: DSC0 Book 
Method: LA-514-113 Rev/Mod 
Worklist Comment: A-101 DSC, RUN UNDER N2. RCI

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<th>SAMPLE#</th>
<th>R A</th>
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<td>A-101 (P)</td>
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</table>

Final page for worklist # 13260

Data Entry Comments:
- S96T004549 results high RPDS are due to sample inhomogeneity.
- S96T004550 high RPDS are due to sample inhomogeneity.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

243
Integration
Delta H 709 mJ
27.5 J/g
Peak 159.5°C
-32.6 mW
Integration
Delta H 308 mJ
10.3 J/g
Peak 256.6°C
3.2 mW

Integration
Delta H 29793 mJ
1000.7 J/g
Peak 140.1°C
-48.9 mW
Integration
Delta H 399 mJ
16.3 J/g
Peak 256.7°C
3.6 mW

Integration
Delta H 21364 mJ
870.1 J/g
Peak 139.3°C
-58.8 mW
Integration
Delta H: 530 mJ
29.5 J/g
Peak: 246.7°C
3.4 mW

Integration
Delta H: 839.7 mJ
839.7 J/g
Peak: 126.4°C
-40.0 mW
**LABCORE Data Entry Template for Worklist# 13261**

**Analyst:** Smf  
**Instrument:** DSC0 3  
**Book #** 12N48

**Method:** LA-514-114 Rev/Mod _C_.

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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<th>R</th>
<th>A</th>
<th>------Test------</th>
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**Final page for worklist # 13261**

- **Verified/Validated by:** Blandina Valenzuela  
  - **Date:** 10-4-96

**Data Entry Comments:**

- Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13261

Analyst: SF Instrument: DSCO Book # 12N14B

Method: LA-514-113 Rev/Mod

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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<td>Joules/g</td>
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<td>Joules/g</td>
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<td>Joules/g</td>
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Final page for worklist # 13261

Analyst Signature: [Signature] Date: 9-25-86

DSC03 Instrument was used

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
168.033 °C
163.233
@C
160.162
@C
27.746 J/g
1aZ.no
ml
21.724
dl
158.502 °C

X1
X2
Peak
Area
ΔH
Height
Onset

158.033 °C
163.233 °C
160.162 °C
162.570 mJ
27.746 J/g
21.724 mW
158.502 °C
Curve 1: DSC

File info: SAM092511 Thu Sep 26 00:21:07 1996
Sample Weight: 25.690 mg

X1 44.800 °C
X2 260.400 °C
Peak 131.954 °C
Area 30.654.342 mJ
ΔH 119.747 J/g
Height 91.520 mW
Onset 155.720 °C

N2 10°C/min
Time: 55:8 00:00 0.0 min Rate: 10.0 0/min

SN FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 02:26:38 1996
Curve 1: DSC
Sample Weight: 27.830 mg

Heat Flow (mW)

Temperature (°C)

X1 46.200 °C
X2 260.400 °C
Peak 138.400 °C
Area 31375.451 mJ
AH 1127.397 J/g
Height 171.822 mW
Onset 46.154 °C

N2 10°C/min
HEAT 8 TIMES 0.0 min RATES 10.0 °C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 04:55:15 1996
Curve 1: DSC
File info: SAM092601 Thu Sep 26 21:00:06 1996
Sample Weight: 24.290 mg
S96T004552

N2 10C/min
TIME 0.0 min RATES 10.0 C/min
Temperature (°C)  SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 21:24:47 1996
Curve 1: DSC

Sample Weight: 21.810 mg

N2 10C/min

Temperature (°C)  SM FULTON

PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 23:57:40 1996
LABCORE Data Entry Template for Worklist# 13262

### Analyst: S4F  Instrument: DSCO  Book # 12N14B

**Method**: LA-514-113 Rev/Mod C-1

**Worklist Comment**: A-101 DSC, RUN UNDER N2. RCJ

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<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
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**Final page for worklist # 13262**

**Analyst Signature**: S. M. Juelson  9-26-96  
**Date**: 9-26-96

**Verified/Validated by**: Blandina Valenzuela  10-7-96

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
DSC STD 12N14B
25.810 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 741 mJ
28.7 J/g
Peak 159.8°C
-33.3 mW

20. mW

Integration
Delta H 741 mJ
28.7 J/g
Peak 159.8°C
-33.3 mW

110. 120. 130. 140. 150. 160. 170. °C
File: 00092.001  DSC METTLER  27-Sep-96
Ident:  0.0  222-S Laboratory

S96T004689 N2  46.196 mg  Rate: 10.0 °C/min

Integration
Delta H  553 mJ
12.0 J/g  Peak  268.5°C  4.1 mW

Integration
Delta H  1500 mJ
32.5 J/g  Peak  344.5°C  4.5 mW

Integration
Delta H  36733 mJ
795.2 J/g  Peak  137.3°C  -62.4 mW

EXG

50. mW

100.  200.  300.  400.  °C
S96T004689 DUP N2
24.478 mg
Rate: 10.0 °C/min

File: 00094.001 DSC METTLER 27-Sep-96
Ident: 0.0 222-S Laboratory

Integration
Delta H 1257 mJ
51.3 J/g
Peak 320.8 °C
2.9 mW

Integration
Delta H 22739 mJ
928.9 J/g
Peak 140.7 °C
-42.2 mW

20. mW
259

100. 200. 300. 400. °C
S96T004690 N2

59.923 mg

Rate: 10.0 °C/min

Ident: 0.0

Integration
Delta H 3559 mJ
59.4 J/g
Peak 334.7°C
7.3 mW

Integration
Delta H 45274 mJ
755.5 J/g
Peak 129.3°C
-68.6 mW
Integration
Delta H 1250 mJ
43.7 J/g
Peak 314.8°C
4.1 mW

Integration
Delta H 27133 mJ
948.0 J/g
Peak 142.2°C
-51.1 mW
### LABCORE Data Entry Template for Worklist# 13263

**Analyst:** SMF  
**Instrument:** DSCO  
**Book #:** 12N14B

**Method:** LA-514-114 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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<th>SAMPLE#</th>
<th>R</th>
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**Final page for worklist # 13263**

*See attached for signatures*

**Analyst Signature**  
Date: 10-3-96

**Verified/Validated by**

Blandina Valenzuela  
Date: 10-4-96

**Data Entry Comments:**

---

*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*
LABCORE Data Entry Template for Worklist# 13263

Analyst: M.M. Dulaney 9-26-96

Instrument: DSC0 3

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13263

Analyst Signature  Date

Susan M. Dulaney  9-26-96

DSC03 Instrument was used

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: DSC

File info: IND100101 Tue Oct 1 09:56:44 1996
Sample Weight: 6.580 mg

12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 264 TO 267.

Heat Flow (mW)

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<td>X2</td>
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<td>Area</td>
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<tr>
<td>ΔH</td>
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<tr>
<td>Height</td>
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N2, EXOTHERM DOWN

Temperature (°C)

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DP BROMLEY
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Oct 1 10:26:49 1996
Curve 1: DSC
File info: SAM100102 Tue Oct 1 14:06:57 1996
Sample Weight: 20.770 mg
S96T004691 DUP

| X1  | 46.200 °C |
| X2  | 191.800 °C |
| Peak| 105.838 °C |
| Area| 13473.188 mJ |
| ΔH | 648.685 J/g |
| Height| 33.228 mW |
| Onset| 95.119 °C |

N2 10°C/min
TEMP: 35.0 °C
TIME: 0.0 min RATES: 10.0 °C/min
Temperature (°C)  DP BRADLEY
7 Series Thermal Analysis System
Tue Oct 1 15:04:33 1996
Curva 1: DSC
File info: qavv2 Thu Sep 26 05:17:42 1996
Sample Weight: 6.580 mg
12N14-B INDIUM AT 10C/MIN

X1  158.033 °C
X2  154.286 °C
Peak  160.252 °C
Area  165.292 mJ
ΔH  20.160 J/g
Height  20.562 mJ
Onset  150.522 °C

N2, EXOTHERM DOWN
TIME  0.0 min RATE  10.0 °C/min

Temperature (°C) JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 19:51:26 1996
Curve 1: DSC
File info: SAM092603 Fri Sep 27 00:36:01 1996
Sample Weight: 20.480 mg

Sample Weight: 20.480 mg
S96T004692

Heat Flow (mW)

N2 10C/min
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0

Temperature (°C)

AH 880.59 J/g
Peak 131.08 °C
Onset 87.37 °C

Peak 278.61 °C
AH 45.17 J/g
Onset 252.64 °C

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Oct 2 13:00:35 1996
Curve 1: DSC
File info: SAM092604 Fri Sep 27 01:53:22 1996
Sample Weight: 23.870 mg

AH 850.0 J/g
Peak 138.75 °C
Onset 94.78 °C

AH 75.49 J/g
Peak 353.63 °C
Onset 242.9 °C

N2 10C/min
Temperature 30 °C
Time: 0.0 min Rate: 10.0 °C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
LABCORE Data Entry Template for Worklist# 13264

**Analyst:** SIF  
**Instrument:** DSCO  
**Book #** 12N14B

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13264

**Analyst Signature**  
Date 9-25-96

**Verified/Validated by**  
Blandina Valenzuela  
Date 10-7-96

**Data Entry Comments:**
- S96T004693 results are the sum of two exotherms.
- S96T004694 results are the sum of two exotherms.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration
Delta H  710 mJ
27.5 J/g
Peak 159.5°C
-32.6 mW
Integration
Delta H 138 mJ
7.0 J/g
Peak 256.6°C
1.2 mW

Integration
Delta H 675 mJ
34.4 J/g
Peak 308.7°C
3.0 mW

Integration
Delta H 20236 mJ
1031.0 J/g
Peak 128.7°C
-41.1 mW
# LABCORE Data Entry Template for Worklist# 13265

**Analyst:** fh  
**Instrument:** DSC01  
**Book #** 12N14-13

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Final page for worklist # 13265**

**Analyst Signature**  
Rayleen Queen  
Date  
9-28-96

**Analyst Signature**  
Linda Shrock  
Date  
10-3-96

Verified/Validated by:  
Blandina Valenzuela  
Date  
10-9-96

---

**Data Entry Comments:**

---

*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*

276
DSC STD 12N14B N2
25.810 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 745 mJ
28.9 J/g
Peak 160.0°C
-32.2 mW
Integration
Delta H 1775 mJ
70.7 J/g
Peak 312.8°C
5.1 mW

Integration
Delta H 27783 mJ
1107.3 J/g
Peak 137.8°C
-56.9 mW
Integration
Delta H 2018 mJ
71.3 J/g
Peak 314.7°C
5.0 mW

Integration
Delta H 27100 mJ
957.9 J/g
Peak 139.6°C
-58.3 mW
LABCORE Data Entry Template for Worklist# 13266

**Analyst:**  
**Instrument:** DSCO  
**Book #** 13N1413

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2, RCJ

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**Final page for worklist # 13266**

**Analyst Signature**  
**Date:** 10/15/95

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**

---

282
Integration
Delta H 515 mJ
28.9 J/g
Peak 158.3°C
-31.3 mW
Integration
Delta H 483 mJ
11.5 J/g
Peak 248.8°C
4.0 mW

Integration
Delta H 2651 mJ
63.3 J/g
Peak 337.0°C
7.2 mW

Integration
Delta H 28121 mJ
671.1 J/g
Peak 143.3°C
-61.0 mW
S96T004697 DUP N2

15.368 mg  Rate: 10.0 °C/min

Integration
Delta H 522 mJ
34.0 J/g
Peak 251.0°C

Integration
Delta H 1064 mJ
69.3 J/g
Peak 315.2°C

Integration
Delta H 11775 mJ
766.2 J/g
Peak 131.2°C

Integration
-31.6 mW

20 mJ

15-Oct-96

222-S Laboratory
S96T004698 DUP N2

15.079 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Integration
Delta H 198 mJ
13.1 J/g
Peak 249.0°C
1.4 mW

Integration
Delta H 683 mJ
45.3 J/g
Peak 311.0°C
2.2 mW

Integration
Delta H 1680 mJ
774.6 J/g
Peak 135.4°C
-27.5 mW
LABCORE Data Entry Template for Worklist# 13267

Analyst: QAM Instrument: DSCO 1 Book # 12N14-8

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13267

QAM Murphy 9-28-96

Verified/Validated by
Blandina
Valenzuela 10-4-96

Analyst Signature Date

Data Entry Comments:
S96T004699 results are the sum of two exotherms

S96T004700 results are the sum of two exotherms

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
25.810 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 700 mJ
27.1 J/g
Peak 159.2°C
-25.8 mW

Blandina Varenquilla for Rob King 10.4.96
Integration
Delta H 18703 mJ
871.9 J/g
Peak 136.4°C
-42.7 mW
Integration
Delta H 1265 mJ
59.0 J/g
Peak 308.6°C
3.7 mW
S96T004700 DUP N2

File: 00021.001 DSC METTLER 28-Sep-96

9.371 mg Rate: 10.0 °C/min

Ident: 0.0 222-S Laboratory

Integration
Delta H 6543 mJ
698.2 J/g
Peak 125.7°C
-15.2 mW

Integration
Delta H 41 mJ
4.4 J/g
Peak 208.3°C
-0.7 mW

Integration
Delta H 56 mJ
5.9 J/g
Peak 252.3°C
0.5 mW

Integration
Delta H 421 mJ
45.0 J/g
Peak 316.4°C
1.7 mW
LABCORE Data Entry Template for Worklist# 13268

<table>
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<th>GROUP</th>
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<th>SAMPLE#</th>
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Final page for worklist # 13268

Nov-29-96
Analyst Signature
9/29/96
Date

Verified/Validated by

Blandina Valenzuela
10-7-96

Data Entry Comments:
S96T004702 thermogram does indicate several different complex reactions occurring from 35-320°C.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
File: 00013.001
DSC METTLER 28-Sep-96
25.810 mg Rate: 10.0 °C/min
Ident: 0.0 222-8 Laboratory

Integration
Delta H 691 mJ
26.8 J/g
Peak 159.2°C
-25.8 mW

Signature: 9/28/96
Integration
Delta H 27392 mJ
1433.4 J/g
Peak 109.3 °C
-73.8 mW

Integration
Delta H 98 mJ
5.1 J/g
Peak 224.4 °C
-1.7 mW
Integration
Delta H31408 mJ
1243.9 J/g
Peak 109.3°C
-69.4 mW
Integration
Delta H 70 mJ
2.8 J/g
Peak 224.2°C
-1.6 mW
Integration
Delta H2502 22 mJ
720.0 J/g
Peak 136.8°C
-32.5 mW
LABCORE Data Entry Template for Worklist# 13348

Analyst: RWK Instrument: DSCO 3 Book # 12N14B

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13348

See attached for signatures

Analyst Signature Date 10-1-96

Verified/Validated by Blandina Valenzuela 10-7-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13348

Analyst: ZK  Instrument: DSCO  Book # 12/14-18

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13348

[Signature] 4/27/96  [Date]  

DSC-03 instrument was used.  [10-1-96]  

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
**Curve 1: DSC**

File info: IN0092802 Sat Sep 28 17:27:49 1996

Sample Weight: 6.580 mg

**IN214-8 INDIUM AT 10C/MIN**

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 302 TO 306

<table>
<thead>
<tr>
<th>X1</th>
<th>157.533 °C</th>
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<tr>
<td>X2</td>
<td>163.366 °C</td>
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<tr>
<td>Peak</td>
<td>160.080 °C</td>
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<tr>
<td>Area</td>
<td>185.924 mJ</td>
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<tr>
<td>ΔH</td>
<td>28.256 J/g</td>
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<tr>
<td>Height</td>
<td>21.505 mW</td>
</tr>
<tr>
<td>Onset</td>
<td>158.331 °C</td>
</tr>
</tbody>
</table>

**N2, EXOTHERM DOWN**

TEMP: 166.8 °C  TIME: 0.0 min RATE: 10.0 °C/min

Blandina Valenzuela for RW King 10-14-96
Curve 1: DSC
File info: SAM092801 Sat Sep 28 18:42:02 1996
Sample Weight: 24.080 mg
S96T004533

ΔH = 967.77 J/g
Peak = 126.56 °C

ΔH = 65.73 J/g
Peak = 263.61 °C
Onset = 98.43 °C
Onset = 234.93 °C

N2 10°C/min
Temperature (°C)
Curve 1: DSC
File info: SAM092804 Sat Sep 28 21:03:26 1996
Sample Weight: 21.010 mg
S96T004533 DUP

ΔH 1008.41 J/g
Peak 128.47 °C
Onset 90.94 °C

ΔH 79.86 J/g
Peak 318.87 °C
Onset 263.19 °C

N2 10C/min
TEMP: 35.0 °C TIMES: 0.0 min RATES: 10.0 °C/min

7 Series Thermal Analysis System
Sat Sep 28 21:33:17 1996
Curve 1: DSC

File info: SAM092805 Sat Sep 28 22:12:45 1996
Sample Weight: 28.120 mg
S96T004534

ΔH 65.05 J/g
Peak 137.05 °C

ΔH 33.84 J/g
Peak 269.57 °C

Onset 90.77 °C

N2 10C/min
TEMP: 35.0 °C TIME: 0.0 min RATE: 10.0 °C/min
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 00:15:07 1996
Curve 1: DSC
File info: SAM092901 Sun Sep 29 00:45:35 1996
Sample Weight: 20.560 mg
S96T004534 DUP

Heat Flow (mW)

AH 648.51 J/g
Peak 134.84 °C

AH 11.11 J/g
Peak 273.6 °C

Onset 91.09 °C

N2 10°C/min
TEMP: 35.0 °C TIME: 0.0 min RATE: 10.0 °C/min
RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 00:47:53 1996
LABCORE Data Entry Template for Worklist# 13349

Analyst: GJM Instrument: DSC0 Book #: 12N14-B
Method: LA-514-113 Rev/Mod C-1
Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13349

Analyst Signature 9-29-91 Date 9/29/91

Verified/Validated by

Blandina Valencuela 10-7-96

Data Entry Comments:
S96T004535 results are the Sum of two exotherms
S96T004536 results are the Sum of two exotherms

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
**DSC STD 12N14-B**

25.810 mg  
Rate: 10.0 °C/min

**Integration**

Delta H 657 mJ  
25.5 J/g

Peak 160.1°C  
-28.1 mW

File: 00037.001  
DSC METTLER 29-Sep-96  
Ident: 0.0  
222-S Laboratory

---

Signature: Murphy 9-29-96
S96T004535 N2
36.589 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 2022 mJ
55.3 J/g
Peak 322.4°C
5.0 mW

Integration
Delta H 34720 mJ
948.9 J/g
Peak 129.3°C
-65.2 mW
Integration
Delta H 738 mJ
41.8 J/g
Peak 308.6°C
3.2 mW

Integration
Delta H 13790 mJ
781.6 J/g
Peak 132.9°C
-31.9 mW

Integration
Delta H 259 mJ
14.7 J/g
Peak 254.6°C
2.0 mW
Integration
Delta H 20533 mJ
899.0 J/g
Peak 139.9°C
-49.2 mW

Integration
Delta H 414 mJ
18.1 J/g
Peak 252.6°C
2.9 mW

Integration
Delta H 1011 mJ
44.3 J/g
Peak 306.7°C
4.8 mW

File: 00042.001  DSC METTLER  28-Sep-96
Ident: 0.0  222-S Laboratory
S96T004536 DUP N2

File: 00044.001 DSC METTLER 29-Sep-96

31.926 mg Rate: 10.0 °C/min

Ident: 0.0 222-8 Laboratory

Integration
Delta H 27479 mJ
860.7 J/g
Peak 143.8°C
-51.2 mW

Integration
Delta H 470 mJ
14.7 J/g
Peak 246.4°C
3.7 mW

Integration
Delta H 1519 mJ
47.6 J/g
Peak 316.4°C
3.8 mW

Note: 9/24/96
LABCORE Completed Worklist Report for Worklist# 13350

Analyst: rwk  Instrument: DSC03  Book# ______

Method: ___________ Rev/Mod ___________

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist# 13350

See attached for signatures 10-7-96

Analyst Signature  Date

Blandina Valencuela 10-7-96
Reviewer Signature  Date

Units shown for QC (BLK/BKG) may not reflect the actual units.
LABCORE Data Entry Template for Worklist# 13350

Analyst: TK  
Instrument: DSC0  
Book #: 12/14-13

Method: LA-514-113 Rev/Mod C-1

Worklist Comment: A-101 DSC, RUN UNDER N2. RCJ

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Final page for worklist # 13350

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: DSC
File info: INDCS2902 Sun Sep 29 02:23:19 1996
Sample Weight: 6.580 mg
12N14-B INDIUM AT 10C/MIN

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 315 TO 319.

| X1   | 158.300 °C |
| X2   | 163.366 °C |
| Peak | 160.395 °C |
| Area | 180.958 mJ |
| ΔH   | 27.501 J/g |
| Height | 19.653 mW |
| Onset| 158.563 °C |

Blandina Valenpazi for RW King 10-14-96

N2, EXOTHERM DOWN
TEMP: 180.0 °C  TIME: 0.0 min RATE: 10.0 °C/min

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 21:01:18 1996
Curve: DSC
Sample Weight: 17.170 mg
S96T004537

N2 10°C/min
TEMP: 25.0°C
TIME: 0.0 min
RATE: 10.0°C/min

AH 918.63 J/g
Peak 131.74°C

Peak 277.58°C
AH 46.94 J/g
Onset 251.09°C

Onset 345.99°C
AH 18.63 J/g

Onset 80.9°C
Curve 1: DSC
File info: SAM092903 Sun Sep 29 19:17:45 1996
Sample Weight: 27.980 mg
S96T004537 DUP

AH 801.19 J/g
Peak 148.35 °C

AH 85.53 J/g
Peak 242.98 °C

Onset 47.67 °C

Onset 242.39 °C

N2 10°C/min
Temp: 35.0 °C
Time: 0.0 min
Rate: 10.0 °C/min

Perkin-Elmer
7 Series Thermal Analysis System
Sun Sep 29 20:38:44 1996
Curve 1: DSC
File info: SAM092905 Sun Sep 29 21:09:17 1996
Sample Weight: 14.200 mg

Sample Weight: 14.200 mg

ΔH 777.86 J/g
Peak 118.48 °C

ΔH -44.95 J/g
Peak 301.49 °C
Onset 234.64 °C

Onset 289.75 °C
Peak 255.32 °C
ΔH -34.56 J/g

N2 10C/min
Temperature (°C)

Temperature (°C)
Curve 1: DSC

Sample Weight: 23.370 mg

S96T004538 DUP

N2 10C/min
Temp: 50-100°C Time: 0.0 min Rate: 10.0°C/min

AH 719.42 J/g
Peak 128.92°C
Onset 47.6°C

AH 23.92 J/g
Peak 298.22°C
Onset 255.8°C

PERKIN-ELMER
7 Series Thermal Analysis System
Mon Sep 30 00:10:24 1996
**LABCORE Data Entry Template for Worklist# 13351**

**Analyst:** DPB  **Instrument:** DSCO  **Book #:** 12N14-B

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Final page for worklist # 13351**

Analyst Signature: 19/06/1730  Analyst Signature: 10-03-96

Date 17/30

Results for 967004539 + 4540 are the sum of two experiments. Inc 10-2.96

Verified/Validated by
Blandina Valenzuela 10-7-96

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
6.580 mg
Rate: 10.0 °C/min
Ident: 0.0
222-8 Laboratory

File: 00068.001
DSC METTLER 01-Oct-96

Integration
Delta H 166 mJ
25.2 J/g
Peak 158.7°C
-10.9 mW

120.  130.  140.  150.  160.  170.  °C
Integration
Delta H: 75 mJ
7.6 J/g
Peak: 264.6°C
0.6 mW

Integration
Delta H: 356 mJ
35.9 J/g
Peak: 318.6°C
1.4 mW

9.899 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

File: 00070.001
DSC METTLER 01-Oct-96

S96T004539 SAM N2
Integration
Delta H: 77 mJ
5.8 J/g
Peak: 262.6°C
0.7 mW

Integration
Delta H: 481 mJ
36.0 J/g
Peak: 320.6°C
1.6 mW

13.334 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

File: 00072.001 DSC METTLER 01-Oct-96
S96T004540 SAM N2

File: 00074.001 DSC METTLER 01-Oct-85

14.457 mg Rate: 10.0 °C/min

Ident: 0.0 222-S Laboratory

Integration
Delta H 13166 mJ 910.7 J/g
Peak 127.2 °C -29.9 mW

Integration
Delta H 243 mJ 16.8 J/g
Peak 252.7 °C 1.7 mW

Integration
Delta H 650 mJ 44.9 J/g
Peak 306.7 °C 2.9 mW
Integration
Delta H 7010 mJ 829.7 J/g
Peak 142.6°C -35.5 mW

Integration
Delta H 312 mJ 15.2 J/g
Peak 250.5°C 2.3 mW

Integration
Delta H 753 mJ 36.7 J/g
Peak 318.5°C 2.9 mW
LABCORE Data Entry Template for Worklist# 13352

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Final page for worklist # 13352

Analyst Signature: [Signature] Date: 09-30-96

Verified/Validated by: Blandina Valenzuela Date: 10-7-96

Data Entry Comments: S96T004541 results are the sum of two exotherms.

S96T004542 results are the sum of two exotherms.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
File: 00037.001 DSC METTLER 29-Sep-96
25.810 mg Rate: 10.0 °C/min Identi: 0.0 222-S Laboratory

Integration
Delta H 654 mJ
25.3 J/g
Peak  160.1°C
-28.1 mW

20. mW

327
Integration | Integration
Delta H 8632 mJ | Delta H 143 mJ
753.9 J/g | 12.5 J/g
Peak 127.4°C | Peak 250.6°C
-23.1 mW | 1.0 mW

Integration | Integration
Delta H 609 mJ | Delta H 213 mJ
53.2 J/g | 18.6 J/g
Peak 308.6°C | Peak 452.5°C
2.3 mW | 0.8 mW
Integration
Delta H 8064 mJ
736.0 J/g
Peak 127.3°C
-23.3 mW
Integration
Delta H 43 mJ
4.0 J/g
Peak 204.4°C
-0.9 mW
Integration
Delta H 236 mJ
21.5 J/g
Peak 252.6°C
1.4 mW
Integration
Delta H 552 mJ
50.4 J/g
Peak 302.6°C
2.5 mW
Integration
Delta H 16528 mJ
721.1 J/g
Peak 136.4°C
-40.9 mW
Integration
Delta H 337 mJ
14.7 J/g
Peak 252.6°C
2.3 mW
Integration
Delta H 1378 mJ
60.1 J/g
Peak 318.7°C
4.6 mW
**LABCORE Data Entry Template for Worklist# 13353**

**Analyst:** [Name]  
**Instrument:** DSC0  
**Book #** [12NJ14-B]

**Method:** LA-514-113 Rev/Mod C-1

**Worklist Comment:** A-101 DSC, RUN UNDER N2. RCJ

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**Final page for worklist # 13353**

**Analyst Signature:** [Signature]  
**Date:** 9-28-96

**Verified/Validated by:**  
**Blandine Valenzuela**  
**Date:** 10-7-96

**Data Entry Comments:**  
S96T004543 results are the sum of two exotherms

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B
25.810 mg  Rate: 10.0 °C/min
Ident: 0.0  222-8 Laboratory

Integration
Delta H 700 mJ
27.1 J/g
Peak 159.2°C
-25.8 mW

File: 00013.001 DSC METTLER 28-Sep-96

Murphy 9-28-96
S96T004543 N2
32.605 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Integration
Delta H 1277 mJ
39.2 J/g
Peak 308.6°C
5.2 mW

Integration
Delta H 34293 mJ
1051.8 J/g
Peak 135.3°C
-65.0 mW

Integration
Delta H 607 mJ
18.6 J/g
Peak 254.5°C
4.3 mW
S96T004543 DUP N2
40.487 mg  Rate: 10.0 °C/min
Ident: 0.0  222-S Laboratory

Integration
Delta H 2104 mJ
52.0 J/g
Peak 328.4°C
5.8 mW

Integration
Delta H 33869 mJ
836.5 J/g
Peak 137.3°C
-62.5 mW

Integration
Delta H 485 mJ
12.0 J/g
Peak 252.4°C
4.3 mW
LABCORE Data Entry Template for Worklist# 13370

**Analyst:**

**Instrument:** DSC01

**Book #**

**Method:** LA-514-113 Rev/Mod

**Worklist Comment:** Dry DSC for A-101. bdv

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**Data Entry Comments:**

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13370

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Final page for worklist # 13370

Blandina Valenzuela 10-7-96
Analyst Signature Date

Valuated by MLA 10-8-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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LABCORE Data Entry Template for Worklist# 13371

**Analyst:** [Name]  
**Instrument:** DSC01  
**Book #**

**Method:** LA-514-113 Rev/Mod

**Worklist Comment:** Dry DSC for A-101. bdv

<table>
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<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
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<th>ACTUAL</th>
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**Data Entry Comments:**

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*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*
Final page for worklist # 13371

Analyst Signature  Date

Validator by  Date

--- Data Entry Comments:

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
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<th>SAMPLE NO.</th>
<th>DSC RESULT (J/g)</th>
<th>TGA RESULT (% water)</th>
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**CALCULATED DRY DSC**
LABCORE Data Entry Template for Worklist# 13799

**Analyst:** RDM  **Instrument:** DSCO  **Book #:** 12N148

**Method:** LA-514-113 Rev/Mod _C - 1_

**Worklist Comment:** A-101 DSC Reruns

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Final page for worklist # 13799

Blandina Valenzuela for RD Meyers  
Analyst Signature  **Date:** 10-14-96

**Verified/Validated by:** Blandina Valenzuela  
**Date:** 10-14-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Integration
Delta H 483 mJ
27.1 J/g
Peak 159.1°C
-25.9 mW
S96T004545DUP N2
22.400 mg
Rate: 10.0 °C/min
Ident: 0.0

Integration
Delta H 2259 mJ
100.9 J/g
Peak 318.8°C
6.3 mW

Integration
Delta H22410 mJ
1000.4 J/g
Peak 136.2°C
-49.0 mW
**LABCORE Data Entry Template for Worklist # 13825**

### Analyst:

[Signature]

### Instrument:

DSCO

### Book #:

1

### Method:

LA-514-113 Rev/Mod

### Worklist Comment:

A-101. RUN UNDER NITROGEN. RUSH! new

### Final page for worklist # 13825

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**Data Entry Comments:**

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
DSC STD 12N14-B N2
17.638 mg Rate: 10.0 °C/min
Integration
Delta H 455 mJ
25.5 J/g
Peak 159.0°C
-24.5 mN

File: 00005.001 DSC METTLER 11-Oct-96
Ident: 0.0 222-8 Laboratory

Blandina Valenzuela for RD Meyers 10-15-96
S96T004586 N2
12.920 mg
Rate: 10.0 °C/min
Ident: 0.0

Integration
Delta H 14437 mJ
1117.4 J/g
Peak 129.1°C
-32.1 mW

Integration
Delta H 330 mJ
25.5 J/g
Peak 250.6°C
2.6 mW

File: 00007.001 DSC METTLER 11-Oct-96
222-B Laboratory
LABCORE Data Entry Template for Worklist# 14041

Analyst: BDV  Instrument: DSCO1  Book # 

Method: LA-514-113 Rev/Mod 

Worklist Comment: Dry DSC for A-101, bdv

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Final page for worklist # 14041

Analyst Signature: Blandina Valenzuela  Date: 10-15-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 14045

Analyst:  PNV          Instrument:  DSC01          Book # __________

Method: LA-514-113 Rev/Mod __________

Worklist Comment: Dry DSC for A-101. bdv

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Final page for worklist # 14045

Blandina Valenti
Analyst Signature
Date

Analyst Signature
Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
**LABCORE Data Entry Template for Worklist# 11922**

**Analyst:** [Name]  
**Instrument:** TGA0  
**Book #:** 82N8-A  
**Method:** LA-560-112 Rev/Mod B-1  
**Worklist Comment:** A-101. Run under Nitrogen. new

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<th>R A</th>
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**Final page for worklist # 11922**

**Data Entry Comments:** S96T004115 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. **DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
STD B2NB-A N2
34.898 mg
Rate: 10.0 °C/min

File: 00014.001 TG METTLER 14-Aug-96
Ident: 0.0  222-5 Laboratory

Step Analysis
Height-20.51 mg
-58.77 %
ResiC. 14.39 mg
41.23 %
Dpeak 115.0°C

B. Green
Step Analysis
Height: 11.26 mg
93.67 %
Resid. 0.76 mg
6.33 %
Dpeak 85.0 °C
Step Analysis
Height: 11.55 mg
-93.07 %
ResiC: 0.86 mg
6.93 %
Dpeak: 85.0°C
Step Analysis
Height: -12.91 mg
-40.16 %
Residual: 19.23 mg
59.84 %

Step Analysis
Height: -2.58 mg
-8.01 %
Residual: 16.63 mg
51.74 %
Dpeak: 187.0°C

8-14-96
R. Green
Step Analysis
Height: -11.29 mg
-40.17 %
ResiC: 16.82 mg
59.83 %
Dpeak: 93.0°C

Step Analysis
Height: -2.24 mg
-7.97 %
ResiC: 14.56 mg
51.80 %
Dpeak: 187.0°C
LABCORE Data Entry Template for Worklist # 11923

**Analyst:** OAM **Instrument:** TGA0 **Book #** 32N8-A

**Method:** LA-560-112 Rev/Mod B-1

**Worklist Comment:** A-101. Run under Nitrogen, new

<table>
<thead>
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<th>GROUP</th>
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<th>SAMPLE#</th>
<th>R A</th>
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<th>FOUND</th>
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<tbody>
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<td>LIQUID</td>
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<td>58.50*</td>
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<td>96001016</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S96T004116</td>
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**Final page for worklist # 11923**

**Analyst Signature** 3-14-96 **Date**

**Verified/Validated by**

Blandina Valenzuela 8-28-96

---

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
STD 82N8-A N2
34.898 mg
Rate: 10.0 °C/min

File: 00014.001 TG METTLER 14-Aug-96
Ident: 0.0 222-S Laboratory

Step Analysis
Height-20.41 mg
-58.50 %
ResiC. 14.46 mg
41.44 %
Dpeak 115.0°C

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 359 TO 363.

Murphy 8-14-96
Step Analysis
Height -9.64 mg
-41.01 %
ResiC. 13.86 mg
58.99 %

Step Analysis
Height -1.97 mg
-8.36 %
ResiC. 11.90 mg
50.62 %

Dpeak 187.0°C
Step Analysis
Height -2.67 mg
-39.88 %
ResiC. 4.03 mg
60.12 %

Step Analysis
Height -0.87 mg
-12.99 %
ResiC. 3.14 mg
46.84 %
Dpeak 135.0°C
Step Analysis
Height -8.50 mg
-38.34 %
ResiC. 13.67 mg
61.66 %
Dpeak 91.0°C

Step Analysis
Height -1.60 mg
-7.20 %
ResiC. 12.07 mg
54.46 %
Dpeak 187.0°C
Step Analysis
Height -4.08 mg
-37.57 %
ResiC. 6.78 mg
62.43 %

Step Analysis
Height -0.99 mg
-9.12 %
ResiC. 5.79 mg
53.31 %
LABCORE Data Entry Template for Worklist# 11924

Analyst: CP M Instrument: TGA0 1 Book # B2AR-A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: A-101. Run under Nitrogen, new

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<th>SAMPLE#</th>
<th>R A -------TEST------</th>
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<td>LIQUID</td>
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Final page for worklist # 11924

Analyst Signature | Date
---|---
CP Murphy | 8-14-96

Verified/Validated by
Blandina Valenzuela | 8-22-96

Analyst Signature | Date
---|---
George Bee | 8/20/96

Data Entry Comments: The results are the sum of two weight loss steps. The second weight loss step could be due to hydrated salts.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
STD B2N8-A N2
34.898 mg
Rate: 10.0 °C/min

Step Analysis
Height-20.51 mg
-58.78 %
RestC. 14.39 mg
41.22 %
Dpeak 115.0 °C
Step Analysis

Height: 13.01 mg
-37.96%
ResiC.: 21.27 mg
62.04%

Step Analysis

Height: -3.26 mg
-9.51%
ResiC.: 17.95 mg
52.35%
Dpeak: 189.0°C
Step Analysis
Height -9.32 mg
-40.78 %
ResiC. 13.53 mg
59.22 %
Dpeak 93.0°C

Step Analysis
Height -1.64 mg
-7.17 %
ResiC. 11.86 mg
51.90 %
Dpeak 191.0°C
LABCORE Data Entry Template for Worklist#

**Worklist Comment:** A-101. Run under Nitrogen. new

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<td>TGA-01</td>
<td>SOLID</td>
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<td>58.77</td>
<td>N/A</td>
<td>%</td>
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<td>A-101 (P)</td>
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<td>%</td>
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<td>A-101 (P)</td>
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<td>37.34</td>
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**Final page for worklist # 11925**

**Data Entry Comments:**

*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*
Step Analysis
Height-12.17 mg
-58.77 %
ResiC. 8.54 mg
41.23 %
Dpeak 88.3°C

B2N8-A STA N2
20.709 mg
Rate: 10.0 °C/min

File: 00040.001 TG METTLER 15-Aug-96
Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 369 TO 373.
Step Analysis
Height -8.49 mg
-33.37 %
ResiC. 16.96 mg
66.63 %
Dpeak 75.0°C
Step Analysis
Height-11.95 mg
41.54 %
ResiC. 16.82 mg
58.46 %
Dpeak 83.0°C
Step Analysis

Height: -5.24 mg
-37.34%

ResiC. 8.79 mg
62.66%

Dpeak 61.0°C
Step Analysis
Height  -9.43 mg    -38.62 %
ResiC.  14.98 mg    61.38 %
Dpeak   77.0°C
LABCORE Data Entry Template for Worklist# 11926

Analyst:  
Instrument: TGA0  
Method: LA-514-114  
Book #:  

Worklist Comment: A-101. Run under Nitrogen. new

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Final page for worklist # 11926

Verified/Validated by

Bianca Valenzuela  
8-21-96

Data Entry Comments: S96T004074 results are the sum of two weights steps

Units shown for QC (SPK & STD) may not reflect the actual units.
worklistrpt Version 1.0 11/23/94
LABCORE Data Entry Template for Worklist# 11926

Analyst: [Signature]  Instrument: TGA0 3  Book #: S2084

Method: LA-560-112 Rev/Mod


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<td>TGA-01</td>
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<td>%</td>
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<td>A-101</td>
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<td>TGA-01</td>
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<td>%</td>
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<td>S96T004074</td>
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<td></td>
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Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Final page for worklist # 11926

TGA-03 Instrument was used.
Curve 1: TGA
Sample Weight: 21.975 mg

Temperature (°C)  N2 10C/MIN

% Weight

Temperature (°C)

X1 19.487 °C
X2 288.275 °C
Y1 99.970 Wt. %
Y2 41.100 Wt. %
AY -58.869 Wt. %
Curve 1: TGA

File info: SAM081502 Thu Aug 15 10:07:19 1996
Sample Weight: 18.377 mg

X1  23.690 °C
X2  237.649 °C
Y1  99.938 Wt. %
Y2  61.124 Wt. %
ΔY -38.814 Wt. %

10°C/MIN N2
TIME: 10.0 min RATES: 10.0 °C/min

EA LAMBERT
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 15 10:22:36 1996
Curve 1: TGA
Sample Weight: 21.561 mg
S9ST004073 DUP

X1  27.023 °C
X2  237.878 °C
Y1  99.945 Wt. %
Y2  31.447 Wt. %
ΔY  -38.497 Wt. %
Curve 1: TGA
File info: SAM081604 Thu Aug 15 14:36:42 1996
Sample Weight: 24.302 mg
S96T004074

ΔY = 4.402 Wt. %
ΔY = 31.95 Wt. %

10C/MIN N2
Temperature (°C)

EA LAMBEI
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 15 15:07:08 1996
Curve 1: TGA
File info: SAM00105 Thu Aug 15 16:02:47 1996
Sample Weight: 16.687 mg
S96T004074 DUP

X1  23.306 °C
X2  218.487 °C
Y1  99.953 Wt. %
Y2  64.261 Wt. %
ΔY -95.703 Wt. %
LABCORE Data Entry Template for Worklist# 11927

Analyst: B.J. Instrument: TGA0 Book # 820881

Method: LA-560-112 Rev/Mod 17-

Worklist Comment: A-101. Run under Nitrogen, new

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Final page for worklist # 11927

R.S. McCown 8/13/96

Analyst Signature Date

Verified/Validated by Blandina Valenzuela 8-22-96

Data Entry Comments: $96T004075 results are the sum of two weight loss steps

$96T004076 results are the sum of two weight loss steps

Units shown for QC (SPK & SID) may not reflect the actual units. DL = Detection Limit, $ = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis

Height: 16.85 mg
-58.86 %
ResiC: 11.78 mg
41.14 %
Dpeak 98.3°C
Step Analysis
Height - 14.28 mg
-35.83 %
ResiC. 25.56 mg
64.17 %

Step Analysis
Height - 2.74 mg
-6.88 %
ResiC. 22.82 mg
57.28 %
\[\text{D\text{\textregistered}peak} \ 187.0^\circ\text{C}\]
Step Analysis
Height: 15.58 mg
-37.02%
ResiC.: 28.20 mg
62.98%

Step Analysis
Height: -2.95 mg
-6.59%
ResiC.: 25.25 mg
56.40%
Dpeak: 193.0 °C
S96T004076 DUP N2
34.471 mg  Rate: 10.0 °C/min
Ident: 0.0 222-S Laboratory

Step Analysis
Height -12.22 mg
-35.44 %
ResiC. 22.25 mg
64.56 %

Step Analysis
Height -2.60 mg
-7.54 %
ResiC. 19.66 mg
57.02 %
Dpeak 185.0°C
LABCORE Data Entry Template for Worklist # 11928

Analyst: pijoo  Instrument: TGA03  Book #: 82N8A

Method: LA-514-114 Rev/Mod C

Worklist Comment: A-101: Run under Nitrogen. New

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<th>S TYPE</th>
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<th>MATRIX</th>
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<th>FOUND</th>
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<tbody>
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Final page for worklist # 11928

Verified/Validated by

Blandina Valenzuela 8-21-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 11928

Analyst:             Instrument: TGA0 3             Book # 82WGA

Method: LA-560-112 Rev/Mod __________

Worklist Comment:  A-101. Run under Nitrogen. new

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<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 STD</td>
<td></td>
<td></td>
<td></td>
<td>TGA-01</td>
<td>SOLID</td>
<td></td>
<td>N/A</td>
<td>%</td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S967004077</td>
<td>0</td>
<td>TGA-01</td>
<td>SOLID</td>
<td>N/A</td>
<td>___</td>
<td>%</td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>3 DUP</td>
<td>S967004077</td>
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<td>___</td>
<td>%</td>
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<tr>
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<td>SOLID</td>
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<td>___</td>
<td>%</td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>5 DUP</td>
<td>S967004078</td>
<td>0</td>
<td>TGA-01</td>
<td>SOLID</td>
<td>N/A</td>
<td>___</td>
<td>%</td>
</tr>
</tbody>
</table>

Final page for worklist # 11928

Analyst Signature: 8/15/96

Date

TGA-03 Instrument was used.

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: TGA

File info: TER001501 Thu Aug 15 08:52:50 1996
Sample Weight: 21.975 mg
TGA STD 8268-A

Signature below represents Chemical Technologist/Chemist that completed/verified the calibration/analysis on pages 389 to 394

<table>
<thead>
<tr>
<th>X1</th>
<th>19.467 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>288.275 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.970 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>94.100 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-58.865 Wt. %</td>
</tr>
</tbody>
</table>

N2 10C/MIN
HEAT 55.8 °C TIME: 0.0 MIN RATE: 10.0 °C/MIN

PERKIN-ELMER
7 Series Thermal Analysis System
Thu Aug 15 17:35:32 1996
Curve 1: TGA
Sample Weight: 34.364 mg
S96T004077

<table>
<thead>
<tr>
<th>X1</th>
<th>19.942 °C</th>
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</thead>
<tbody>
<tr>
<td>X2</td>
<td>300.452 °C</td>
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<tr>
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<tr>
<td>Y2</td>
<td>55.841 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-44.132 Wt. %</td>
</tr>
</tbody>
</table>

Temperature (°C)  Weight (Wt. %)
Curve 1: TBA

Sample Weight: 25.282 mg
S96T004077 DUP

<table>
<thead>
<tr>
<th>X1</th>
<th>20.254 °C</th>
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</thead>
<tbody>
<tr>
<td>X2</td>
<td>248.942 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.970 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>58.469 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-41.501 Wt. %</td>
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</table>
Curve 1: TGA
Sample Weight: 14.576 mg
S96T004078 SAM

X1  21.769 °C
X2  245.559 °C
Y1  99.924 Wt. %
Y2  99.559 Wt. %
ΔY -48.361 Wt. %

Temperature (°C)

Weight (wt. %)

10C/MIN N2
TARE 33.8 g TIMES 0.0 MIN RATES 10.0 g/min

DP BROMLEY
PERKIN-ELMER
7 Series Thermal Analysis System
LABCORE Data Entry Template for Worklist# 12279

**Analyst:** RDM  **Instrument:** TGA0  **Book #** 82N8A

**Method:** LA-514-114 Rev/Mod B-1

**Worklist Comment:** Please run A-101 TGA under N2. bdv

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<th>GROUP</th>
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<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>-------TEST-------</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND DL</th>
<th>UNIT</th>
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<tbody>
<tr>
<td>1</td>
<td>STD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TGA-03</td>
<td>LIQUID</td>
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<td>96001049</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S961004289</td>
<td>0</td>
<td></td>
<td>TGA-03</td>
<td>LIQUID</td>
<td>N/A</td>
<td>47.09</td>
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</tr>
<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
<td>S961004289</td>
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<td></td>
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<td>46.98</td>
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<td>A-101 (P)</td>
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<td>S961004290</td>
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<td>LIQUID</td>
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<td>47.29</td>
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<td>A-101 (P)</td>
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<td>LIQUID</td>
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<td>47.63</td>
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</tr>
</tbody>
</table>

**Final page for worklist # 12279**

See attached for signatures

Analyst Signature Date 8-29-96

Verified/Validated by  
Blandina Valenzuela 9-39-96

**Data Entry Comments:**

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist # 12279

Analyst: [Name]  Instrument: TGA0  Book # 921789

Method: LA-560-112 Rev/Mod 13

Worklist Comment: Please run A-101 TGA under N2. bdv

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<th>R A</th>
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<th>MATRIX</th>
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<td></td>
<td></td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>$96T004289 0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
<td>$96T004289 0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
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<td>%</td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>5 DUP</td>
<td>$96T004290 0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Final page for worklist # 12279

[Signature]

Date

[Signature]

Date

Data Entry Comments:

TGA03 instrument was used.

Blandina

Valenigulo

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 39-40.

Curve 1: TBA
Sample Weight: 10.281 mg

% Weight vs Temperature

Blandina.Van Engen for RD Meyers 9-3-96

N2 10C/MIN 10.0 g/min 10.0 g/min
Time: 0.0 min Rate: 10.0 g/min

7 Series Thermal Analysis System
Mon Aug 26 11:56:05 1996
Curve 1: TGA
Sample Weight: 19.843 mg
Sample Weight: 19.843 mg

<table>
<thead>
<tr>
<th>X1</th>
<th>24.954 °C</th>
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<tbody>
<tr>
<td>X2</td>
<td>297.894 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.966 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>52.874 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-47.092 Wt. %</td>
</tr>
</tbody>
</table>

Temperature (°C) 10°C/MIN N2
TIME: 0.0 min RATE: 10.0 °C/min
RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
LABCORE Data Entry Template for Worklist# 12335

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>-------</th>
<th>TEST</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 STD</td>
<td>TGA-01</td>
<td>SOLID</td>
<td>59.2</td>
<td>58.17</td>
<td>N/A</td>
<td>%</td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
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<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S96T004279 0</td>
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<td>SOLID</td>
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<td>%</td>
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<td></td>
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<tr>
<td>96001049</td>
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<td>TGA-01</td>
<td>SOLID</td>
<td>47.48</td>
<td>47.0</td>
<td>N/A</td>
<td>%</td>
<td></td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>4 SAMPLE</td>
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<td>TGA-01</td>
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<td>47.08</td>
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<td>%</td>
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<td>SOLID</td>
<td>42.11</td>
<td>47.08</td>
<td>N/A</td>
<td>%</td>
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</table>

Data Entry Comments:

- S96T004279 results are the sum of two weight loss steps.
- S96T004280 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

Final page for worklist # 12335

Verified/Validated by
Blandina Valenzuela 9-6-96
TGA STD 82N8-A

18.668 mg

Rate: 10.0 °C/min

Step Analysis

Height: 10.86 mg

-58.17 %

Resid. 7.81 mg

41.83 %

Dpeak 81.7°C

File: 00084.001 TG METTLER 30-Aug-96
Ident: 0.0 222-S Laboratory

Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 404 to 408.
Step Analysis
Height -3.67 mg
-39.20 %
ResiC. 5.67 mg
60.72 %
Dpeak 71.0°C

Step Analysis
Height -0.77 mg
-8.20 %
ResiC. 4.91 mg
52.52 %
Dpeak 179.0°C
Step Analysis
Height -3.14 mg
-34.88%
ResiC. 5.87 mg
65.12%

Step Analysis
Height -1.09 mg
-12.12%
ResiC. 4.78 mg
53.00%
Step Analysis
Height -7.35 mg
-32.17%
ResiC. 15.49 mg
67.83%

Step Analysis
Height -2.27 mg
-9.94%
ResiC. 13.22 mg
57.89%
LABCORE Data Entry Template for Worklist# 13219

**Analyst:** SMT  **Instrument:** TGA0  **Book #:** 82N8A

**Method:** LA-560-112 Rev/Mod B-1

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
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<th>MATRIX</th>
<th>ACTUAL</th>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
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<td>LIQUID</td>
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<td>58.94</td>
<td>N/A</td>
<td></td>
<td>%</td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
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<td>TGA-01</td>
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<td>46.95</td>
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<td>46.87</td>
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</table>

**Final page for worklist # 13219**

**Analyst Signature** 9-24-96  
**Date**

**Verified/Validated by**

**Blandina Valenzuela 9-24-96**

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height: -7.26 mg
-40.06%
Residual: 10.87 mg
59.94%
Dpeak: 81.0°C

Step Analysis
Height: -1.26 mg
-6.96%
Residual: 9.59 mg
52.91%
Dpeak: 181.0°C
S96T004582 DUP N2
14.408 mg
Rate: 10.0 °C/min
Ident: 0.0
222-8 Laboratory

Step Analysis
Height -5.81 mg
-40.29 %
ResiC. 8.60 mg
59.71 %
Dpeak 77.0°C

Step Analysis
Height -0.96 mg
-6.66 %
ResiC. 7.64 mg
53.03 %
Dpeak 183.0°C
Step Analysis
Height -5.54 mg
-40.58 %
ResiC. 8.11 mg
59.42 %
Dpeak 73.0°C

Step Analysis
Height -0.84 mg
-6.17 %
ResiC. 7.26 mg
53.24 %
Dpeak 183.0°C
Step Analysis
Height -5.89 mg
-40.88 %
Residual 8.52 mg
59.12 %
Peak 77.0°C

Step Analysis
Height 0.86 mg
-5.99 %
Residual 7.65 mg
53.13 %
Peak 181.0°C
LABCORE Data Entry Template for Worklist# 13220

Analyst: SMF  Instrument: TGA0  Book # 82N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>TEST</th>
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<td>TGA-03</td>
<td>59.2</td>
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<td>96001049</td>
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<td>A-101 (P)</td>
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<td>46.02</td>
<td>46.25</td>
<td>N/A</td>
<td>%</td>
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</table>

Final page for worklist # 13220

See attached for signatures?

Analyst Signature Date 9-24-96

Verified/Validated by

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13220

Analyst: SHF  Instrument: TGA0  Book #: 82N8-A

Method: LA-560-112 Rev/Mod

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<th>SAMPLE#</th>
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<th>TEST</th>
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<th>ACTUAL</th>
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<th>DL</th>
<th>UNIT</th>
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</thead>
<tbody>
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<td>A-101 (P)</td>
<td>1 STD</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>961004584</td>
<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
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</tr>
<tr>
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<td>A-101 (P)</td>
<td>3 DUP</td>
<td>961004584</td>
<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
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<td></td>
</tr>
<tr>
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</tr>
</tbody>
</table>

Final page for worklist # 13220

Analyst Signature: Susan Jillett  Date: 9-24-96

TGA-03 instrument was used.

9-24-96

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve: TGA

File info: TER062401 Tue Sep 24 17:12:20 1996
Sample Weight: 19.665 mg

TGA STD 82NS-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 417 TO 421.

<table>
<thead>
<tr>
<th>X1</th>
<th>30.765 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1</td>
<td>99.974 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>41.075 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-58.999 Wt. %</td>
</tr>
</tbody>
</table>

N2 10C/MIN
TIME: 30.0 min RATES: 40.0 C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Sep 24 17:20:33 1996
Curve 1: TGA
Sample Weight: 16.061 mg

<table>
<thead>
<tr>
<th>X1</th>
<th>27.934 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>271.240 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.960 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>52.958 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-47.002 Wt. %</td>
</tr>
</tbody>
</table>

10G/MIN N2
TIME: 0.0 min RATES: 10.0 g/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Sep 24 19:37:46 1996
Curve 1: TGA
File info: SAM092402 Tue Sep 24 20:30:00 1998
Sample Weight: 14.684 mg
S98T004584 DUP

X1  24.597 °C
X2  238.944 °C
Y1  99.973 Wt. %
Y2  53.378 Wt. %
ΔY -46.597 Wt. %

Temperature (°C)  Weight (Wt. %)
Curve 1: TGA
Sample Weight: 16.942 mg

<table>
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<tr>
<th>X1</th>
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<tbody>
<tr>
<td>X2</td>
<td>100.0</td>
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<tr>
<td>Y1</td>
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<tr>
<td>Y2</td>
<td>53.933 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-46.018 Wt. %</td>
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</table>

Temperature (°C) vs. Weight (Mt. %)

10C/MIN N2

Perkin-Elmer
7 Series Thermal Analysis System
Tue Sep 24 21:38:34 1996
LABCORE Data Entry Template for Worklist# 13221

Analyst: SMF  Instrument: TGA0  Book # 89N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<thead>
<tr>
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<th>SAMPLE#</th>
<th>A</th>
<th>TGA-03</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>LIMIT</th>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>2 SAMPLE</td>
<td>S96004587</td>
<td>0</td>
<td>TGA-03</td>
<td>LIQUID</td>
<td>59.2</td>
<td>58.90</td>
<td>N/A</td>
<td>%</td>
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<tr>
<td>96001049</td>
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<td>TGA-03</td>
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<td>96001016</td>
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<td>46.40</td>
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</table>

Final page for worklist # 13221

See attached for signatures

Analyst Signature  Date  9-24-96

Verified/Validated by
Blandina Valenzuela  9-26-96

S96004587 results are the sum of two weight loss steps. The noticeable change in slope is probably due to a strongly hydrated salt.

Data Entry Comments:
S96004587 results are the sum of two weight loss steps. The noticeable change in slope is probably due to a strongly hydrated salt.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13221

## Analyst: SHF

**Instrument:** TGA0  
**Book #: 8208A**

**Method:** LA-560-112 Rev/Mod

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

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<th>R A TEST</th>
<th>MATRIX</th>
<th>ACTUAL</th>
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<td>1 STD</td>
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<td></td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049 A-101 (P)</td>
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<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001049 A-101 (P)</td>
<td>3 DUP</td>
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<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
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<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>5 DUP</td>
<td>S96T004669</td>
<td>0</td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>N/A</td>
<td>%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Final page for worklist # 13221**

**Analyst Signature**  
**Date:** 9-24-96

**TGA-03 instrument was used**  
**Date:** 9-24-96

**Blandina Valenzuela**

---

**Data Entry Comments:**

---

**Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.**
Curve 1: TGA
File info: TEO62401 Tue Sep 24 17:12:20 1996
Sample Weight: 19.665 mg
TGA STD 828-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 424 TO 428.

X1: 30.765 °C
X2: 288.706 °C
Y1: 99.974 Wt. %
Y2: 41.075 Wt. %
ΔY: -58.999 Wt. %

Temperature (°C)  N2 10C/MIN
Time: 0.0 min Rate: 10.0 °C/min

7 Series Thermal Analysis System
SM FULTON
PERKIN-ELMER
Tue Sep 24 17:25:33 1996

Susie M. Fulton 9-24-96
Curve I: TGA
File info: SAM092405 Wed Sep 25 00:26:39 1996
Sample Weight: 10.113 mg

Weight (Mt. %) vs Temperature (°C)

AY -38.25 Wt. %
AY -8.209 Wt. %

10C/MIN N2
Type S6.3 T Times 0.0 min Rates: 10.0 g/min
SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 00:43:55 1996
Curve 1: TGA
File info: SAM092405 Wed Sep 25 01:38:38 1996
Sample Weight: 13.982 mg
S96T004587 DUP

Temperature (°C)  Weight (wt. %)

ΔT -39.39 wt. %
ΔT -8.019 wt. %

10C/MIN N2
TIME: 0.0 min RATES: 10.0 C/min

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 02:47:16 1996
Sample Weight: 13.656 mg

**Curve 1: TGA**

- **Temperature (°C):** 50.0 to 105.0
- **Weight (Mt. %):** 50.0 to 100.0
- **ΔY -37.4 Wt. %** at 100.0
- **ΔY -6.044 Wt. %** at 50.0

**Conditions:**
- **Temperature Rate:** 10°C/min N2
- **Time:** 0.0 min
- **Rate:** 10.0 g/min

**Equipment:**
- **Model:** 7 Series Thermal Analysis System
- **Manufacturer:** PERKIN-ELMER

**Date:** Wed Sep 25 03:30:46 1996
Curve 1: TGA

Sample Weight: 16.529 mg

Sample Weight: 16.529 mg

10C/MIN N2

Temperature (°C)  100.0  200.0  300.0  400.0

Weight, wt. %

ΔY = 36.51 wt. %

ΔY = 2.893 wt. %
# LABCORE Data Entry Template for Worklist# 13222

**Analyst:** SHF  **Instrument:** TGA0  **Book #** 82N8-A

**Method:** LA-560-112 Rev/Mod B-1

**Worklist Comment:** A-101 TGA, RUN UNDER N2, RCJ

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<tr>
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<th>PROJECT</th>
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<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
<th>M A T R I X</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 STD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TGA-01</td>
<td>LIQUID</td>
<td>59.2</td>
<td>59.33</td>
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</tr>
<tr>
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<td>TGA-01</td>
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<td>93.54</td>
<td>N/A</td>
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</table>

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**Final page for worklist # 13222**

**Analyst Signature**  **Date**  
Luiz M. Delton 9-24-96

**Verified/Validated by**  
Blandina Valenzuela 9-36-96

**Data Entry Comments:**

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height: 10.12 mg
-100.65%
Residual: -0.07 mg
-0.65%
Step Analysis
Height - 10.28 mg
98.27%
Residue - 0.18 mg
1.73%
Step Analysis
Height: -19.12 mg
-88.69 %
ResiC.: 2.44 mg
11.31 %

Step Analysis
Height: -1.02 mg
-4.75 %
ResiC.: 1.41 mg
6.56 %
Step Analysis
Height = 19.84 mg
-98.86 %
ResiC. = 2.49 mg
11.14 %

Step Analysis
Height = 1.05 mg
-4.68 %
ResiC. = 1.38 mg
6.19 %
LABCORE Data Entry Template for Worklist# 13223

Analyst: M | Instrument: TGA0 | Book #82V8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
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<th>SAMPLE#</th>
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<tbody>
<tr>
<td>1 STD</td>
<td></td>
<td>TGA-01</td>
<td></td>
<td></td>
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<td>%</td>
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<td>%</td>
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<td>A-101 (P)</td>
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Final page for worklist # 13223

Analyst Signature: Murphy 9-24-96

Date: 9-26-96

Verified/Validated by: Blandina Valenzuela

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82N8A
16.737 mg
Rate: 10.0 °C/min
Step Analysis
Height -9.89 mg
-59.09 %
Resid. 6.85 mg
40.91 %
Dpeak 84.2°C

File: 00034.001 TG METTLER 23-Sep-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height: 46.63 mg
- 76.59%
Residue: 14.25 mg
23.41%
Dpeak: 141.0°C
Step Analysis
Height: 39.96 mg
-72.84 %
Residue: 14.89 mg
27.16 %
Dpeak: 131.0 °C
LABCORE Data Entry Template for Worklist# 13233

**Analyst:** RDM  **Instrument:** TGA0 3  **Book #** 82N8A

**Method:** LA-514-114 Rev/Mod C-

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
<th>GROUP</th>
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<th>S TYPE</th>
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<th>MATRIX</th>
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<td>SoliD</td>
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<td>%</td>
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**Final page for worklist # 13233**

See attached for signatures

**Analyst Signature**

Verified/Validated by

Blandina

Valenzuela 10-7-96

**Data Entry Comments:** S96T004545 will need to be rerun due to high RPD's

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13233

Analyst: [REDACTED]  Instrument: TGA0  Book #: [REDACTED]

Method: LA-560-112 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
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<th>SAMPLE#</th>
<th>R</th>
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<td>TGA-01</td>
<td>SOLID</td>
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<td>2 SAMPLE</td>
<td>S96T004544</td>
<td>0</td>
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<td>TGA-01</td>
<td>SOLID</td>
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<td>N/A</td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>3 DUP</td>
<td>S96T004544</td>
<td>0</td>
<td></td>
<td>TGA-01</td>
<td>SOLID</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>96001049</td>
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<td>0</td>
<td></td>
<td>TGA-01</td>
<td>SOLID</td>
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<td>N/A</td>
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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
<td>5 DUP</td>
<td>S96T004545</td>
<td>0</td>
<td></td>
<td>TGA-01</td>
<td>SOLID</td>
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</table>

Final page for worklist # 13233

Analyst Signature: [REDACTED]  Date: 9-25-96

TGA-03 instrument was used.

10-1-96

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: TGA

Sample Weight: 18.111 mg

Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 441 to 442.

Blandina Valenzuela for RD Meyers 10-14-96

N2 10C/MIN

TIME: 0.0 min RATE: 10.0 C/min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 06:11:42 1996
Curve 1: TBA
File info: SAM092503 Wed Sep 25 09:16:34 1996
Sample Weight: 12.553 mg
5961004544

<table>
<thead>
<tr>
<th>X1</th>
<th>25.518 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>X2</td>
<td>195.789 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.956 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>79.618 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-26.340 Wt. %</td>
</tr>
</tbody>
</table>

Temperature (°C) | 10C/MIN N2 |
Time: 0.0 min Rates: 10.0 °C/min
RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Wed Sep 25 12:11:05 1996
LABCORE Data Entry Template for Worklist# 13234

Analyst: SMF  Instrument: TGA03  Book # S2N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A ---TEST-----</th>
<th>MATRIX</th>
<th>ACTUAL</th>
<th>FOUND</th>
<th>DL</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 STD</td>
<td></td>
<td></td>
<td>TGA-03</td>
<td></td>
<td>SOLID</td>
<td>59.2</td>
<td>58.88</td>
<td>N/A</td>
<td>%</td>
</tr>
<tr>
<td>96001T49 A-101 (P)</td>
<td>2 SAMPLE</td>
<td>967004540546 0</td>
<td>TGA-03</td>
<td>SOLID</td>
<td>N/A</td>
<td>21.13</td>
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<td></td>
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<tr>
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<td>SOLID</td>
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<td>16.53</td>
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<tr>
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<td>TGA-03</td>
<td>SOLID</td>
<td>N/A</td>
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</tr>
</tbody>
</table>

Final page for worklist # 13234

See attached for signatures

Verified/Validated by

Blandina
Valenzuela
10-7-96

Analyst Signature  Date  10-7-96

Data Entry Comments: 967004546 should be rerun, the shapes of the thermograms are different.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13234

Analyst: SHF  Instrument: TGA0  Book #: 92158A

Method: LA-560-112 Rev/Mod

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>SOLID</td>
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<td>A-101 (P)</td>
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<td>TGA-01</td>
<td>SOLID</td>
<td>N/A</td>
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<td>TGA-01</td>
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<td>TGA-01</td>
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Final page for worklist # 13234

Susie M. Jelton  9-25-96  Analyst Signature

Date

TGA-03 instrument was used  10-1-96

Blandina Valenzuela

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 444 to 448.

X1: 23.059 °C
X2: 288.024 °C
Y1: 99.941 wt. %
Y2: 41.062 wt. %
AY: -58.879 wt. %

Temperature (°C)

Weight (wt. %)
Curve 1: TGA
Sample Weight: 16.104 mg
SS6T004547

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1 27.657</td>
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</tr>
<tr>
<td>X2 227.834</td>
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<tr>
<td>Y1 99.943</td>
<td></td>
</tr>
<tr>
<td>Y2 56.860</td>
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</table>

10°C/MIN N2

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Curve 1: TBA
Sample Weight: 23.344 mg
SS6T004547 Dup

Sample weight: 23.344 mg

<table>
<thead>
<tr>
<th></th>
<th>Temperature (°C)</th>
<th>Weight (Mt. %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>31.339</td>
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<tr>
<td>X2</td>
<td>249.523</td>
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</tr>
<tr>
<td>Y1</td>
<td></td>
<td>99.977</td>
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<tr>
<td>Y2</td>
<td></td>
<td>57.500</td>
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<tr>
<td>ΔY</td>
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LABCORE Data Entry Template for Worklist# 13235

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<td>TGA-01</td>
<td>96001049</td>
<td>A-101 (P)</td>
<td>2 WLE</td>
<td>0 TGA-01</td>
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<td>58.2</td>
<td>N/A  %</td>
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<tr>
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<td>A-101 (P)</td>
<td>2 SAMPLE</td>
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<td>0</td>
<td>TGA-01</td>
<td>SOLID</td>
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<td>46.57</td>
<td>N/A  %</td>
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Final page for worklist # 13235

Verified/Validated by Blandina Valenzuela 9/26/96

Data Entry Comments: S96T004548 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82NB-A

21.710 mg
Rate: 10.0 °C/min

Step Analysis
Height: 12.65 mg
-58.28%
ResiC. 9.06 mg
41.72%
Dpeak 90.8°C

File: 00089.001 TG METTLER 25-Sep-96
Ident: 0.0 222-8 Laboratory

Blandina Valenzuela for RD Meyer 10-14-96
S96T004548 N2

Height -5.92 mg
-41.01%
ResiC. 8.52 mg
58.99%
Dpeak 77.0°C

Step Analysis

Height -0.81 mg
-5.60%
ResiC. 7.69 mg
53.26%
Dpeak 175.0°C

File: 00071.001
TG METTLER 25-Sep-95
Ident: 0.0
222-8 Laboratory
Step Analysis
Height -6.83 mg  Height -0.83 mg
  -41.53 %       -5.04 %
ResiC. 9.61 mg ResiC. 8.73 mg
  58.47 %        53.09 %
Dpeak 81.0°C Dpeak 181.0°C
LABCORE Data Entry Template for Worklist# 13251

Analyst: __SMF__ Instrument: TGA0 1 Book #: 82N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<th>SAMPLE#</th>
<th>R</th>
<th>A</th>
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<td></td>
<td>TGA-01</td>
<td></td>
<td></td>
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<tr>
<td>96001016 A-101 (P)</td>
<td></td>
<td>2 SAMPLE</td>
<td>S96T004693 0</td>
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<td>TGA-01</td>
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<td>59.3</td>
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<td>96001016 A-101 (P)</td>
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<td>3 DUP</td>
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Final page for worklist # 13251

Analyst Signature: __Susan M. Keltner__ Date: 9-25-94

Verified/Validated by: __Blandina Valenzuela__ Date: 10-7-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82N8-A
21.710 mg
Rate: 10.0 °C/min

File: 00089.001
TG METTLER 25-Sep-96
Ident: 0.0
222-8 Laboratory

Step Analysis
Height: -12.62 mg
-58.14 %
ResiC: 9.09 mg
41.86 %
Dpeak 90.8°C
S96T004693 N2
35.994 mg
Rate: 10.0 °C/min
Ident: 0.0

Step Analysis
Height: 11.67 mg
-32.42 %
ReflC: 24.33 mg
67.58 %
Dpeak: 127.0°C
Step Analysis
Height -9.85 mg
-32.64 %
Resid. 20.33 mg
67.36 %
Dpeak 131.0°C
Step Analysis
Height: 6.08 mg
Resid: 10.99 mg
Dpeak: 107.0°C

File: 00079.004
TG METTLER 28-Sep-98

Ident: 0.0
Laboratory 222-8
Step Analysis
Height -6.86 mg
-33.40 %
Resid. 13.69 mg
66.60 %
Dpeal 115.0 °C
LABCORE Data Entry Template for Worklist# 13252

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
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<td>58.14</td>
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<td>%</td>
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Final page for worklist # 13252

Analyst Signature: [Signature] Date: 9-25-96
Verified/Validated by: Blanchina Valencia Date: 10-7-96

Data Entry Comments: S96T004549 results are the sum of two weight loss steps? S96T004550 results are the sum of two weight loss steps?

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82N8-A

File: 00009.001  TG METTLER 25-Sep-96

21.710 mg  Rate: 10.0 °C/min  Ident: 0.0  222-S Laboratory

Step Analysis
Height-12.62 mg
-58.14 %
ResiC. 9.09 mg
41.86 %
Dpeak 90.8°C
Step Analysis
Height = 12.68 mg
-40.55 %
ResiC. = 18.59 mg
59.45 %

Step Analysis
Height = -1.67 mg
-5.34 %
ResiC. = 16.89 mg
54.03 %
Dpeak = 183.0°C
Step Analysis
Height -8.79 mg
-37.78 %
ResiC. 14.47 mg
62.19 %
Dpeak 91.0°C

Step Analysis
Height -1.46 mg
-6.28 %
ResiC. 12.98 mg
55.77 %
Dpeak 179.0°C
Step Analysis
Height -9.08 mg
-34.96%
ResiC. 16.90 mg
65.04%

Step Analysis
Height -1.66 mg
-6.37%
ResiC. 15.24 mg
58.67%
Dpeak 181.0°C
Step Analysis

Height -9.81 mg
-39.90 %
ResiC. 14.77 mg
60.10 %
Dpeak 93.0°C

Step Analysis

Height -1.06 mg
-4.31 %
ResiC. 13.71 mg
55.78 %
Dpeak 181.0°C
LABCORE Data Entry Template for Worklist# 13253

Analyst: SMF Instrument: TGA0 3 Book # 82N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>58.88</td>
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<td>%</td>
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Final page for worklist # 13253

See attached for signatures.

Analyst Signature Date 10-1-96

Verified/Validated by Blandina Valenzuela 10-7-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

465
LABCORE Data Entry Template for Worklist# 13253

Analyst: SJE  Instrument: TGA0  Book #: 82 N8A

Method: LA-560-112 Rev/Mod

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<th>DL</th>
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<tbody>
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<td></td>
<td></td>
<td></td>
<td>TGA-01</td>
<td></td>
<td></td>
<td>N/A</td>
<td>%</td>
</tr>
<tr>
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<td>0</td>
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<td>SOLID</td>
<td>N/A</td>
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<td>%</td>
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<tr>
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<td>S96T004551</td>
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<td></td>
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<td>%</td>
</tr>
<tr>
<td>96001049 A-101 (P)</td>
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</table>

Final page for worklist # 13253

Analyst Signature: Susie M. Dalton 9-25-96  Date: 9-25-96

TGA-03 instrument was used.  Date: 10-1-96

Blandina Valencia

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve i: TGA

Sample Weight: 16.111 mg
TGA STD 82NS-A

Signature below represents chemical technologist/chemist that
completed/verified the calibration/analysis on pages 46 through 47.

X1  23.059 °C
X2  268.024 °C
Y1  99.941 Wt. %
Y2  41.062 Wt. %
ΔY  58.879 Wt. %

N2 10°C/min
TIME: 65.8 MIN 0.0 MIN RATES 10.0 G/Min

RD MEYERS
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 00:41:42 1996
Curve 1: TGA
File info: SAM092501 Thu Sep 26 21:01:35 1996
Sample Weight: 16.364 mg

10C/MIN N2
TIME: 38.8 MIN MATE: 10.0 g/min

Temperature (°C)       SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 21:12:47 1996
LABCORE Data Entry Template for Worklist# 13254

Analyst: SFE  Instrument: TGA0  Book #: 82N8A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
<th>S TYPE</th>
<th>SAMPLE#</th>
<th>R A</th>
<th>TEST</th>
<th>MATRIX</th>
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<th>DL</th>
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<td>SAMPLE</td>
<td>S967004689 0</td>
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</table>

Final page for worklist # 13254

Analyst Signature: J. M. Fulton 9-26-96
Date: 9-26-96

Verified/Validated by: Blandina Valeniga 10-7-96

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82N8A
46.604 mg
Rate: 10.0 °C/min

Step Analysis
Height-27.26 mg
-58.49 %
ResiC. 19.35 mg
41.51 %
Dpeak 121.7°C

File: 00087.001 TG METTLER 26-Sep-96
Ident: 0.0 222-S Laboratory

Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 43 to 47.

Signature: [handwritten]
Date: 9-26-96
S96T004689 N2
29.702 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

File: 00093.001
TG METTLER
27-Sep-96

Step Analysis
Height: -9.47 mg
-31.89 %
ResiC. 20.23 mg
68.11 %
Dpeak 131.0°C
Step Analysis

Height -8.32 mg
-32.93 %
ResiC. 16.94 mg
67.07 %
Dpeak 121.0 °C
Step Analysis
Height -7.37 mg
-33.48 %
ResiC. 14.65 mg
66.52 %
Dpeak 123.0°C
Step Analysis
Height -7.21 mg
-33.86%
ResiC. 14.09 mg
66.14%
Dpeak 113.0°C
LABCORE Data Entry Template for Worklist# 13255

Analyst: SMF  Instrument: TGA0 3  Book #: 8318A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>TGA-03</td>
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<td>S96T004691</td>
<td>0</td>
<td>TGA-03</td>
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<td>28.36</td>
<td>N/A</td>
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<td>A-101 (P) 3</td>
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<td>32.98</td>
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Final page for worklist # 13255

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13255

Analyst: SMP  Instrument: TGA0  Book #: 82N8A

Method: LA-560-112 Rev/Mod

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td></td>
<td>%</td>
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</tr>
<tr>
<td>96001016 A-101 (P)</td>
<td>3 DUP</td>
<td>596T004691</td>
<td>0</td>
<td>TGA-01</td>
<td>SOLID</td>
<td>N/A</td>
<td></td>
<td>%</td>
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</tr>
<tr>
<td>96001016 A-101 (P)</td>
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<td>596T004692</td>
<td>0</td>
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</tr>
<tr>
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<td>0</td>
<td>TGA-01</td>
<td>SOLID</td>
<td>N/A</td>
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</table>

Final page for worklist # 13255

Analyst Signature: Susie M. Fulton  Date: 9-26-96

Data Entry Comments:

TGA-03 instrument was used.

Blandina Valenzuela

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: TGA
File info: TER100101 Tue Oct 1 10:52:16 1996
Sample Weight: 22.850 mg
TGA STD 82NB-A

Sample Height: 22.850 mg

Signature below represents chemical technologist/chemist that completed/verified the calibration/analysis on pages 480 to 485.

| X1  | 20.296 °C |
| X2  | 287.776 °C |
| Y1  | 99.835 Wt. % |
| Y2  | 41.231 Wt. % |
| ΔY  | -58.604 Wt. % |

N2 10C/MIN
TIME: 0.0 min RATES: 10.0 C/min

DP BROMLEY
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Oct 1 12:31:27 1996
Curve 1: TGA
File info: SAM100101 Tue Oct 1 12:56:44 1996
Sample Weight: 22.272 mg
SS6T004691 SAM

<table>
<thead>
<tr>
<th>X1</th>
<th>23.046 °C</th>
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</thead>
<tbody>
<tr>
<td>X2</td>
<td>218.955 °C</td>
</tr>
<tr>
<td>Y1</td>
<td>99.884 Wt. %</td>
</tr>
<tr>
<td>Y2</td>
<td>69.941 Wt. %</td>
</tr>
<tr>
<td>ΔY</td>
<td>-29.943 Wt. %</td>
</tr>
</tbody>
</table>

Temperature (°C) 10C/MIN N2
Times: 0.0 min Rate: 10.0 C/min

DP BROMLEY
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Oct 1 13:02:56 1996
Curve 1: TGA
File info: SAM100102 Tue Oct 1 14:14:36 1996
Sample Weight: 13.472 mg
S96T04691 DUP

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Weight (Wt. %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.759</td>
<td>100.0</td>
</tr>
<tr>
<td>198.303</td>
<td>99.773 Wt. %</td>
</tr>
<tr>
<td>222.759</td>
<td>95.0</td>
</tr>
<tr>
<td>198.303</td>
<td>90.0</td>
</tr>
<tr>
<td>71.413</td>
<td>80.0</td>
</tr>
<tr>
<td>198.303</td>
<td>75.0</td>
</tr>
<tr>
<td>228.361</td>
<td>70.0</td>
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</table>

Temperature range: 22.759°C to 198.303°C
Weight range: 100.0 Wt. % to 70.0 Wt. %

10C/MIN N2
TEMPE: 0.0 G TEMPS: 0.0 MIN RATES: 10.0 G/SEC

DP BROWLEY
PERKIN-ELMER
7 Series Thermal Analysis System
Tue Oct 1 14:48:29 1996
Curve I: TGA
File info: TER092502 Thu Sep 26 05:47:03 1996
Sample Weight: 22.568 mg
TGA STD 62NB-A

Sample Weight: 22.568 mg

JD SPELLMAN
PERKIN-ELMER
7 Series Thermal Analysis System
Thu Sep 26 19:58:10 1996
Curve 1: TGA
File info: SAMO92603 Fri Sep 27 00:40:58 1996
Sample Weight: 21.919 mg
S96T004692

X1  23.218 °C
X2  221.711 °C
Y1  99.967 Wt. %
Y2  66.989 Wt. %
ΔY -32.978 Wt. %

Temperature (°C) vs. Weight %

10°C/MIN  N2
8 TIMES  0.0 MIN RATES: 10.0 G/MIN

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Sep 27 01:00:35 1996
Curve 1: TGA
Sample Weight: 23.461 mg
S96T004692 DUP

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Weight [%]</th>
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<tbody>
<tr>
<td>X1</td>
<td>25.405</td>
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<tr>
<td>X2</td>
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<td>Y1</td>
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<tr>
<td>Y2</td>
<td>69.343</td>
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<tr>
<td>ΔY</td>
<td>-30.592</td>
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Temperature (°C) vs. Weight [%] graph

SM FULTON
PERKIN-ELMER
7 Series Thermal Analysis System
Fri Sep 27 02:38:41 1996
LABCORE Data Entry Template for Worklist# 13256

Analyst: ~B~ Instrument: TGA0 ~  Book #: 82N8-A

Method: LA-560-112 Rev/Mod ~B-1~

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
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<th>S TYPE</th>
<th>SAMPLE#</th>
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</table>

Final page for worklist # 13256

Analyst Signature: 9-28-96
Date: 

Verified/Validated by:

Blandina Valenzuela 10-7-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

486
TGA STD 82N8-A N2

File: 00004.001 TG METTLER 27-Sep-96

39.752 mg Rate: 10.0 °C/min

Ident: 0.0 222-S Laboratory

Step Analysis

Height-23.27 mg
-58.54 %
ResiC. 16.48 mg
41.46 %
Dpeak 107.0°C
Step Analysis
Height -10.73 mg  
-33.51 %
ResiC. 21.30 mg  
66.49 %
Dpeak 129.0°C

Step Analysis
Height -0.48 mg  
-1.49 %
ResiC. 20.82 mg  
65.00 %
Step Analysis
Height: -10.14 mg
-34.52%
ResiC.: 19.23 mg
65.48%

Step Analysis
Height: -0.46 mg
-1.56%
ResiC.: 18.77 mg
63.92%
Step Analysis
Height: -10.60 mg
-30.94 %
ResiC. 23.66 mg
69.06 %

Step Analysis
Height: -0.97 mg
-2.84 %
ResiC. 22.66 mg
66.16 %
Step Analysis
Height: -11.62 mg  70.93 %
ResiC.: 28.34 mg  69.10 %
Dpeak: 147.0°C

Step Analysis
Height: -0.73 mg  69.10 %
ResiC.: 27.61 mg  69.10 %
LABCORE Completed Worklist Report for Worklist# 13258

Analyst: tam  Instrument: TGA01  Book#: 82N8-A

Method: LA-560-112_ Rev/Mod B-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>%</td>
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Final page for worklist# 13258

Units shown for QC (BLK/BKG) may not reflect the actual units.

492
TGA STD 82N8-A

File: 00014.001 TG METTLER 28-Sep-96
Ident: 0.0 222-S Laboratory

38.626 mg Rate: 10.0 °C/min

Step Analysis
Height: 22.76 mg
-58.93 %
ResiC: 15.87 mg
41.07 %
Dpeak: 111.0 °C
Step Analysis
Height -1.41 mg
-13.72 %
ResiC. 8.85 mg
86.28 %

Step Analysis
Height -1.81 mg
-17.67 %
ResiC. 7.04 mg
66.60 %
Dpeak 109.0 °C

Step Analysis
Height -0.20 mg
-1.90 %
ResiC. 6.85 mg
66.70 %
S96T004699 DUP N2

Step Analysis
Height: -1.53 mg
-9.30 %
ResiC. 14.93 mg
90.70 %
Dpeak: 119.0°C

Step Analysis
Height: -2.54 mg
-15.45 %
ResiC. 12.39 mg
75.25 %

Step Analysis
Height: -0.25 mg
-1.55 %
ResiC. 12.13 mg
73.70 %

File: 00028.001 TG METTLER 28-Sep-96
Ident: 0.0 222-S Laboratory
Step Analysis
Height  \(-5.75 \text{ mg}\)
- \(-26.43 \%\)
ResiC.  \(16.00 \text{ mg}\)
- \(73.49 \%\)
Dpeak  \(107.0^\circ \text{C}\)
LABCORE Data Entry Template for Worklist# 13259

<table>
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<td>SOLID</td>
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<td>22.63</td>
<td>N/A%</td>
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</table>

Final page for worklist # 13259

Verified/Validated by
Blandina Valenzuela

Data Entry Comments: 996T004702 results are the sum of three weight loss steps. The RPDs and thermogram shapes are different that a re-run should be performed.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height-22.72 mg
-58.81 %
ResiC. 15.91 mg
41.19 %
Dpeak 111.0°C
Step Analysis
Height: 18.88 mg
-68.73 %
ResiC: 8.56 mg
31.18 %
Dpeak: 137.0°C

Rob Wing 9/28/96
LABCORE Data Entry Template for Worklist# 13339

Analyst: **RWK**  Instrument: TGA0 3  Book #: R2N8A

Method: LA-514-114 Rev/Mod C-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>S961004533</td>
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Final page for worklist # 13339

**See attached for signatures?**

Analyst Signature: **RWK**  Date: 10-1-96

**Verified/Validated by:**

Blandina Valecuzella

Data Entry Comments: S961004533 results are the sum of 3 weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13339

**Analyst:** [Signature]  
**Instrument:** TGA0  
**Method:** LA-560-112 Rev/Mod  
**Book #:**  

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

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**Final page for worklist # 13339**

[Signature]  
9/23/96

Analyst Signature  
Date

**Data Entry Comments:**

TGA-03 instrument was used.

10-1-96

Blandina Valenzuela

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: TGA

File info: SAM092803 Sat Sep 28 18:45:51 1996
Sample Weight: 10.852 mg
S96T004533

![Graph showing weight (wt. %) vs. temperature (°C) for TGA analysis.]

- ΔY - 11.49 wt. %
- ΔY - 17.59 wt. %
- ΔY - 9.674 wt. %

10^C/Min N2
TEMP: 35.0°C TIME: 0.0 min RATE: 10.0 0C/min
TEMP: 600.0°C

RM KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Sep 28 21:39:11 1996
Curve 1: TGA
Sample Weight: 12.380 mg
S96T004533 DUP

Sample Weight (wt. %)

Temperature (°C)

10C/MIN N2
10.0 20.0 30.0 40.0

Rate: -0.0 m/min

AY -9.362 wt. %

AY -9.148 wt. %

AY -20.2 wt. %
Curve 1: TGA

File info: SAM092805 Sat Sep 28 22:06:26 1996
Sample Weight: 18.762 mg
S96T004534

Sample Weight: 18.762 mg

Temperature (°C) RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 00:09:24 1996

ΔY = 5.981 Wt. %

ΔY = 28.14 Wt. %

ΔY = 0.673 Wt. %
Curve 1: TGA
File info: SAM092901 Sun Sep 29 00:41:26 1996
Sample Weight: 11.142 mg
S96T004534 DUP

Sample Height: 11.142 mg

Temperature (°C) vs. Weight (Wt. %)

AY = 100.0 Wt. %
LY = 65.0 Wt. %

10C/MIN N2
TEMP: 35.0 C
TIME: 0.0 min
RATE: 10.0 C/min

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 00:42:22 1996
LABCORE Data Entry Template for Worklist# 13340

Analyst: QA M Instrument: TGA0 1 Book #82N8-A

Method: LA-560-112 Rev/Mod 1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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Final page for worklist # 13340

QA Murphy 9-29-96

Analyst Signature Date

Verified/Validated by

Blandina Valey

9-29-96

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82NB-A
32.137 mg
Rate: 20.0 °C/min
Ident: 0.0

Step Analysis
Height: 18.71 mg
-58.22 %
Resid: 13.43 mg
41.78 %
Dpeak: 124.3°C

File: 00036.001 TG METTLER 29-Sep-96
222-9 Laboratory
S96T004535 N2
35.281 mg

Rate: 10.0 °C/min

File: 00039.001 TG METTLER 29-Sep-96
Ident: 0.0 222-S Laboratory

Step Analysis
Height-12.72 mg
-36.06%
Res1C. 22.54 mg
63.89%
Dpeak 137.0°C

5 mg

511
Step Analysis
Height -9.68 mg
-31.05 %
ResiC. 21.48 mg
68.89 %
Dpeak 125.0 °C
Step Analysis
Height -3.51 mg
-12.66 %
ResiC. 24.19 mg
87.34 %

Step Analysis
Height -4.66 mg
-16.83 %
ResiC. 19.53 mg
70.51 %

Step Analysis
Height -0.43 mg
-1.54 %
ResiC. 19.10 mg
68.97 %
Step Analysis
Height -2.65 mg
-12.88 %
ResiC. 17.91 mg
87.12 %

Step Analysis
Height -3.80 mg
-18.49 %
ResiC. 14.11 mg
68.63 %
Dpeak 117.0°C

Step Analysis
Height -0.28 mg
-1.35 %
ResiC. 13.83 mg
67.27 %
**LABCORE Data Entry Template for Worklist# 13341**

**Analyst:** RWK  | **Instrument:** TGA0  | **Book #** 82N8A

**Method:** LA-514-114 Rev/Mod C-

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

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**Final page for worklist # 13341**

**Analyst Signature**

**Date** 10-2-96

**Verified/Validated by**

Blandina Valensuela

**Date** 10-7-96

**Data Entry Comments:**

---

*Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.*
LABCORE Data Entry Template for Worklist# 13341

**Analyst:** [Signature]  
**Instrument:** TGA0  
**Method:** LA-560-112 Rev/Mod  
**Book #:** 8247-A

**Worklist Comment:** A-101 TGA, RUN UNDER N2. RCJ

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**Final page for worklist # 13341**

**Analyst Signature** [Signature]  
**Date:** 9/24/96

**TGA-03 instrument was used.**

**10/2/96**  
**Blandina Valenzuela**

**Data Entry Comments:**

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Curve 1: TGA

File info: TER092901 Sun Sep 29 02: 25: 32 1996
Sample Weight: 17.893 mg
TGA STD 82NB-A

Signature below represents Chemical Technologist/Chemist that completed/verified the calibration/analysis on pages 517 to 521.

X1 21.427 °C
X2 288.243 °C
Y1 99.939 Wt.%
Y2 41.165 Wt.%
ΔY -58.773 Wt.%

Blandina Valenzuela for RW King 10.14.96

N2 10C/MIN
TIME: 0.0 min RATE: 10.0 C/min

RW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 20: 55: 30 1996
Curve 1: TGA
Sample Weight: 20.017 mg

Sample Weight: 20.017 mg

Temperature (°C)  RW KING
Temp: 25.0 °C  PERKIN-ELMER
Time: 0.0 min Rate: 10.0 °C/min
7 Series Thermal Analysis System
Sun Sep 29 20:44:53 1996

AY -29.72 Wt. %
AY 4.195 Wt. %
Curve 1: TGA
File info: SAM092903 Sun Sep 29 19:14:02 1996
Sample Weight: 7.290 mg
S96T4537 DUP

Temperature (°C)

Weight (wt. %)

100.0
95.0
90.0
85.0
80.0
75.0
70.0
65.0
60.0

 Temperature (°C) 10C/MIN N2
 TG: 35.8 g TIMES: 0.0 min RATES: 10.0 C/min

AW KING
PERKIN-ELMER
7 Series Thermal Analysis System
Sun Sep 29 20:49:57 1996
Curve 1: TGA

Sample Weight: 17.638 mg
S96T004538 DUP

Sample Weight: 17.638 mg

Temperature (°C) RH KING

10% MIN N2
TIME: 0.0 min RATE: 10.0 °C/min

7 Series Thermal Analysis System
RW KING
PERKIN-ELMER
Sun Sep 29 22:28:46 1996
LABCORE Data Entry Template for Worklist# 13342

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Final page for worklist # 13342

Verified/Validated by
Blandina Valenzuela
10-7-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height: 14.77 mg
-58.71 %
ResiC: 10.39 mg
41.29 %
Dpeak: 100.8 °C
Step Analysis
Height -8.85 mg
-37.20 %
Residual 14.93 mg
62.80 %
Step Analysis
Height: 5.41 mg
-34.43%
Residue: 10.28 mg
65.49%
Dpeak: 61.0°C
Step Analysis
Height -7.60 mg
-30.65 %
Resid C. 17.18 mg
69.35 %
Dpeak 111.0 °C
LABCORE Data Entry Template for Worklist# 13343

Analyst:  M.K  Instrument:  TGA0  Book # 8278-A

Method: LA-560-112 Rev/Mod  13-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

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<td>34.5</td>
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</tbody>
</table>

Final page for worklist # 13343

Analyst Signature: R.B.  Date: 10-5-96

Verified/Validated by:

Blandina Valpiana  10-7-96

Data Entry Comments:

S961004542 results are the sum of two weight loss steps.

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
TGA STD 82N8-A
32.137 mg  Rate: 20.0 °C/min
File: 00036.001 TG METTLER 29-Sep-96
Ident: 0.0  222-S Laboratory

Step Analysis
Height-18.71 mg
-58.22 %
Resid. 13.43 mg
41.78 %
Dpeak 124.3°C

Note: Kim 9/29/96
Step Analysis
Height -2.55 mg
-10.97 %
ResiC. 20.73 mg
88.99 %

Step Analysis
Height -4.71 mg
-20.21 %
ResiC. 16.02 mg
68.77 %

Step Analysis
Height -0.34 mg
-1.47 %
ResiC. 15.68 mg
67.30 %
S96T004542 N2
20.320 mg

Rate: 10.0 °C/min
Ident: 0.0

Step Analysis
Height -3.23 mg
-15.89 %
ResiC. 17.07 mg
84.02 %

Step Analysis
Height -3.63 mg
-17.85 %
ResiC. 13.45 mg
66.17 %

Dpeak 111.0°C

File: 00051.001 TG METTLER 30-Sep-96
222-S Laboratory

5. mg

100. 200. 300. 400. °C

532
S96T004542 DUP N2
26.023 mg
Rate: 10.0 °C/min
Ident: 0.0
222-S Laboratory

Step Analysis
Height -2.79 mg
-10.74 %
ResiC. 23.23 mg
89.26 %
Dpeak 125.0°C

Step Analysis
Height -6.18 mg
-23.76 %
ResiC. 17.04 mg
65.50 %

Step Analysis
Height -0.36 mg
-1.39 %
ResiC. 16.68 mg
64.11 %

File: 00053.001
TG METTLER
30-Sep-96

Pat King 9/30/96
LABCORE Data Entry Template for Worklist# 13344

Analyst: [Name]  Instrument: TGA0  Book # 82N8-A

Method: LA-560-112 Rev/Mod B-1

Worklist Comment: A-101 TGA, RUN UNDER N2. RCJ

<table>
<thead>
<tr>
<th>GROUP</th>
<th>PROJECT</th>
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<th>SAMPLE#</th>
<th>R A</th>
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Final page for worklist # 13344

Analyst Signature: [Name]  Date: 9-28-96

Verified/Validated by: [Name]

Analyst Signature: [Name]  Date: 10-3-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height-22.74 mg
-58.87 %
Resid. 15.89 mg
41.13 %
Dpeak 111.0 °C
Step Analysis
Height -6.17 mg
-31.54 %
ResiC. 13.40 mg
68.46 %
Dpeak 111.0°C
Step Analysis
Height: 29.98 mg
-34.40%
Residue: 57.18 mg
65.60%
D peak: 167.0°C
LABCORE Data Entry Template for Worklist# 13766

Analyst: DCD Instrument: TGA0 3 Book # 82N8A

Method: LA-514-114 Rev/Mod D-0

Worklist Comment: A-101 TGA Reruns

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<th>GROUP</th>
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<th>R</th>
<th>A</th>
<th>--TEST--</th>
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<th>DL</th>
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<td>TGA-03</td>
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<td>TGA-03</td>
<td>SOLID</td>
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Final page for worklist # 13766

Verified/Validated by
Blandina Valenzuela 10-14-96

 Analyst Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13766

Analyst: **DeD**  Instrument: TGA0  Book # **B2N8-A**

Method: LA-560-112 Rev/Mod

Worklist Comment: A-101 TGA Reruns

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<td>TGA-01</td>
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<td>A-101 (P)</td>
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Final page for worklist # 13766

Analyst Signature:  Date: 10-12-96

Data Entry Comments:

---

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

---

539
Curve 1: TGA
File info: TER101201 Sat Oct 12 07:11:20 1996
Sample Weight: 19.122 mg
TGA STD 82N8-A

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/ CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 540 TO 542.

[Graph with temperature and weight data]

- X1: 24.537 °C
- X2: 289.133 °C
- Y1: 99.969 Wt. %
- Y2: 41.251 Wt. %
- ΔY: -58.738 Wt. %

N2 10C/MIN
TIME: 30.0 MIN
RATE: 10.0 °C/min

rd mayer
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Oct 12 20:03:06 1996
Curve 1: TGA
Sample Weight: 18.383 mg

N2: 10°C/Min
Time: 0.0 Min Rate: 10.0 C/min

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Curve 1: TGA
Sample Weight: 10.636 mg
996T004702 DUP

Weight (wt. %)

Temperature (°C)

ΔY -9.15 Wt. %

ΔY -8.527 Wt. %

10C/Min N2

DC DUNHAM
PERKIN-ELMER
7 Series Thermal Analysis System
Sat Oct 12 23:30:02 1996
LABCORE Data Entry Template for Worklist# 13767

**Analyst:** PJM  **Instrument:** TGA0  **Book #:** 82N8A

**Method:** LA-560-112 Rev/Mod C-0

**Worklist Comment:** A-101 TGA Reruns

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<tr>
<td>96001049</td>
<td>A-101 (P)</td>
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<tr>
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<td>A-101 (P)</td>
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**Final page for worklist # 13767**

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**Data Entry Comments:**

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Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
LABCORE Data Entry Template for Worklist# 13767

Analyst:  
Instrument: TGA0  
Book #8215-A

Method: LA-514-114 Rev/Mod

Worklist Comment: A-101 TGA Reruns

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<td>TGA-03</td>
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<td>%</td>
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<td>%</td>
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Final page for worklist # 13767

Analyst Signature:  
Date: 10/14/96

Analyst Signature:  
Date: 10/15/96

Data Entry Comments:

TGA-01 instrument was used.

Blandina Valenzuela

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.
Step Analysis
Height: 12.75 mg
-59.15 %
Residue: 8.81 mg
40.85 %
Dpeak: 94.2 °C
Step Analysis
Height -1.96 mg
-16.53 %
ResiC. 8.12 mg
68.33 %

Step Analysis
Height -1.80 mg

ResiC. 10.08 mg
84.87 %
Step Analysis
Height -3.45 mg
-11.69 %
ResiC. 26.02 mg
88.31 %

Step Analysis
Height -6.05 mg
-20.53 %
ResiC. 19.97 mg
67.78 %
Dpeak 125.0°C
Step Analysis
Height -6.48 mg
-19.20 %
ResiC. 23.58 mg
69.85 %
Dpeak 135.0°C

Step Analysis
Height -3.70 mg
-10.95 %
ResiC. 30.06 mg
89.05 %

Rate: 10.0 °C/min

File: 00038.001 TG METTLER 14-Oct-96
Ident: 38.0 222-8 Laboratory

33.759 mg
S96T004697 N2

5. mg
Step Analysis
Height -9.78 mg
-20.12 %
ResiC. 33.70 mg
69.30 %
Dpeak 139.0°C
Step Analysis
Height: -9.97 mg
-59.07%
Residual: 6.91 mg
40.93%
Dpeak: 87.0°C
Step Analysis
Height -1.76 mg
-12.43 %
ResiC. 12.43 mg
87.57 %

Step Analysis
Height -2.94 mg
-20.70 %
ResiC. 9.49 mg
66.87 %
Dpeak 99.0°C
S96T004698 DUP N2

14.395 mg Rate: 10.0 °C/min

File: 00055.001 TG METTLER 15-Oct-96
Ident: 0.0 222-S Laboratory

Step Analysis
Height -1.96 mg
-13.63 %
ResiC. 12.43 mg
86.37 %

Step Analysis
Height -2.98 mg
-20.67 %
ResiC. 9.46 mg
65.70 %
Dpeak 99.0°C
LABCORE Data Entry Template for Worklist# 13824

Analyst:
Instrument: TGA0
Book #: BLNBA

Method: LA-560-112 Rev/Mod L-0


<table>
<thead>
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<th>PROJECT</th>
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<th>SAMPLE#</th>
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Final page for worklist # 13824

Analyst Signature: [Signature]
Date: 10/14/96

Verified/Validated by:
Blandina Valenzuela
10-14-96

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Worklist Slot Number, R = Replicate Number, A = Aliquot Code.

553
TGA STD 82N8-A N2

19.335 mg

Rate: 10.0 °C/min

File: 000006.001 TG METTLER 11-Oct-96
Ident: 0.0 222-S Laboratory

Step Analysis

Height: 11.44 mg
-59.15 %
ResiC: 7.90 mg
40.85 %
Dpeak: 89.2°C

Blandina Valenzuela for RD Meyers 10-15-96
Step Analysis
Height -7.79 mg
-39.41 %
ResiC. 11.97 mg
60.59 %

Step Analysis
Height -1.46 mg
-7.41 %
ResiC. 10.47 mg
53.01 %
Step Analysis
Height -6.33 mg
-41.29 %
ResiC. 9.00 mg
58.71 %

Step Analysis
Height -0.96 mg
-6.24 %
ResiC. 8.00 mg
52.21 %
Dpeak 183.0°C
**DISTRIBUTION SHEET**

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<th>From</th>
<th>Project Title/Work Order</th>
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<td>Production Planning &amp; Control</td>
<td>WHC-SD-WM-DP-200, Rev. 0, “Tank 241-A-101, Cores 154 and 156 Analytical Results for the 45 Day Report”</td>
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<td>U.S. Department of Energy, RL</td>
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* Needs only releasing paperwork, not a copy of the released document.