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		ECN NO.: N/A

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1. EDT

610417

2. To: (Receiving Organization) Distribution	3. From: (Originating Organization) Characterization Plans and Reports	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Tank 241-BY-106/Waste Management/CPR/Char. Eng.	6. Cog. Engr.: Kevin E. Bell	7. Purchase Order No.: N/A
8. Originator Remarks: This document is being released into the Supporting Document System for retrievability purposes.		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: N/A
11. Receiver Remarks: For Release.		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 04/21/95

[illegible]

16. KEY					
Approval Designator (F)	Reason for Transmittal (G)			Disposition (H) & (I)	
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18.	19.	20.	21. DOE APPROVAL (if required) Ctrl. No.
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Document Number: WHC-SD-WM-DP-103, REV 0

Document Title: 60-Day Safety Screen Results for Tank 241-BY-106,
Rotary Mode, Cores 64 and 65

Release Date: 5/1/95

**This document was reviewed following the
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A-6001-400.2 (09/94) WEF256

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SUPPORTING DOCUMENT		1. Total Pages 208
2. Title 60-Day Safety Screen Results for Tank 241-BY-106, Rotary Mode, Cores 64 and 65	3. Number WHC-SD-WM-DP-103	4. Rev No. 0
5. Key Words 60-Day Safety Screen Results, 60-Day, Safety Screen, Safety Screen Results, Tank 241-BY-106, Tank BY-106, BY-106, Rotary Mode, Core 64, Core 65	6. Author Name: Kevin E. Bell Signature Organization/Charge Code 8E480/MDR21	
7. Abstract N/A		
8. RELEASE STAMP <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> OFFICIAL RELEASE BY WHC DATE MAY 01 1995 55 <i>Sta. 5</i> </div>

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WHC-SD-WM-DP-103, REV. 0

ANALYTICAL SERVICES

**60-DAY SAFETY SCREEN RESULTS
FOR TANK 241-BY-106, ROTARY MODE,
CORES 64 AND 65**

Date Printed:

APRIL 17, 1995

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NARRATIVE

**60-DAY SAFETY SCREEN RESULTS FOR TANK 241-BY-106
ROTARY-MODE CORE SAMPLES 64 AND 65.**

This is the 60-Day report for the fiscal year 1995 tank 241-BY-106 (BY-106) rotary-mode characterization effort. Included are copies of the differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA) scans as requested in References 1 and 2. Also included are copies of any immediate notification documentation. Other pertinent documentation will be included in the BY-106 216-day report.

Summary

Core samples 64 and 65 from tank BY-106, obtained by the rotary-mode core sampling method, were received by the 222-S Laboratories. Core 64 was extruded, subsampled, and analyzed in accordance with Reference 1. Drainable liquid was analyzed at the segment level for energetics by DSC, percent water by TGA, and total organic carbon (TOC) by furnace oxidation. In addition, no separable liquid layers were observed. The entire drainable liquid samples from cores 64 and 65 were not filtered in accordance with References 1 and 2. The core 64 drainable liquid subsamples were filtered through a 0.45 um filter prior to analysis. The core 65 drainable liquid was not filtered since it appeared clear during subsampling. No analyses were performed on a drainable liquid composite. Before such analyses were run, Reference 1 was superseded by Reference 2, which does not require analysis of a drainable liquid composite. The solids from core 64 were analyzed at the half segment level for energetics by DSC, percent water by TGA, TOC by persulfate oxidation, and total cyanide. No sludge was recovered from core 64; all solids collected were saltcake. Some segments contained slurry, which appeared to be a mixture of finely divided saltcake and drainable liquid. No immediate notifications were necessary on samples from core 64.

Per direction of the Ferrocyanide Safety Program (Reference 3), only segments 11, 12, and 13 of core 65 were analyzed. Drainable liquids were analyzed at the segment level by DSC, and for lithium (Li) by inductively coupled plasma/atomic emission spectroscopy (ICP) where the respective chain of custody form indicated that hydrostatic head fluid was used to clear the drill string. Saltcake samples were analyzed at the half-segment level by DSC, TGA, and nickel (Ni) by ICP. Sludge samples were analyzed at the quarter-segment level by DSC, TGA, Ni by ICP, total cyanide, TOC, and total alpha activity. The action limit was exceeded for DSC on the sludge from segment 13 of core 65.

Sample Receipt and Extrusion

Core 64 was taken from riser 10B of tank BY-106. Sample removal, receipt, and extrusion data are summarized for core 64 in Table 1. Subsequently, an additional core sample was removed from riser 10B of tank BY-106. This second core sample was removed from the "hole" created during the initial sampling effort. At the request of the rotary-mode sampling cognizant engineer, the order of extrusions for this core sample was not in chronological order. This explains why some extrusions did not take place for several days following laboratory receipt of the sample. The core was extruded in the order: segment 4, 5, 8, 6, 7, 1, 2, 3, 5A, 13, 12, 11, 10, and 9. The fifth segment of core 65 was taken in two parts labeled 5 and 5A. According to the chain of custody forms, segment 5 was expected to contain 8 in. of sample and segment 5A was expected to contain 11 in. Sample removal, receipt, and extrusion data for core 65 are summarized in Table 2.

Table 1. Sample Receipt and Extrusion Information for BY-106, Core 64.

Segment	Date Sampled	Date Received	Date Extruded	Liner Liq. (g)	Drain. Liq. Recovered (g)	Solids Recovered (g)	Sample Description
1	11/17/94	11/21/94	11/30/94	0.0	0.0	15.95 (upper half)	Extruded was a light-yellow, creamy slurry followed by off-white saltcake with a slushy texture. Both were collected in a single jar.
2	11/21/94	11/21/94	11/30/94	0.0	0.0	125.06 (upper half)	Extruded was a greenish-grey slurry, followed by roughly 3 in. of off-white, chunky saltcake coated with the colored slurry. Both materials were collected in a single jar.
3	11/21/94	11/28/94	12/1/94	0.0	144.32	37.59 (slurry)	Collected pale olive-colored drainable liquid followed by an even paler colored slurry. The slurry was grainy from the presence of solids.
4	11/23/94	11/28/94	12/2/94	0.0	0.0	128.01 (lower half) 189.31 (upper half)	Collected from the upper and lower halves of the segment a grayish-brown, wet saltcake with a slushy, grainy texture. Mixed with the upper half saltcake was a darker colored slurry. The sample was partitioned into upper and lower halves.
5	12/2/94	12/5/94	12/6/94	0.0	0.0	2.43 (upper half)	The solids were wet, slush-like, and pale yellow in color. They only appeared at the very end of the extrusion.
6	12/2/94	12/5/94	12/7/94	0.0	17.23	2.83 (upper half)	Olive-green colored drainable liquid was obtained first, followed by no sample until the very end of the extrusion when a small amount of wet, slushy, pale yellow solids were observed.
7	12/5/94	12/6/94	12/8/94	0.0	0.0	0.0	The sampler piston was found lodged in the valve housing, which did not allow sample collection or valve closure.
8	12/5/94	12/6/94	12/8/94	0.0	0.0	114.83 (lower half) 110.82 (upper half) 162.52 (slurry)	The sample was a mixture of wet saltcake and slurry. The grey, slushy saltcake was partitioned into upper and lower halves. The darker colored slurry, containing some lumps of saltcake, was placed into a separate container.
9	12/5/94	12/9/94	12/9/94	0.0	0.0	73.11 (upper half)	Collected from the upper half of the sampler was pale yellow, grainy, saltcake mixed with some slurry. All material was placed in one jar.
10	12/20/94	12/21/94	12/21/94	0.0	244	146 (lower half) 28 (upper half)	Pale green, drainable liquid was recovered first followed by light yellow, wet saltcake from the upper and lower halves of the sampler.
11	12/21/94	12/22/94	12/27/94	0.0	0.0	37.5 (upper half)	Collected from the upper half of the sampler were dry, hard, crystalline solids ranging in color from light gray to white. The entire sample was homogenized with a mortar and pestle.
12	12/21/94	12/22/94	12/27/94	5.0	0.0	96.0 (upper half)	Wet saltcake was collected from the upper and lower halves. It was moist and slush-like, appearing light gray to white in color. All of the sample was homogenized with a mortar and pestle.
13	12/21/94	12/22/94	12/27/94	0.0	0.0	12.8 (upper half)	The off-white solids were dry, crystalline, and hard similar to those in segment 11. All sample was homogenized with a mortar and pestle.
FB	12/21/94	12/21/94	12/27/94	0.0	287	0.0	Collected clear, colorless, drainable liquid in two sample jars.

FB = field blank

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Table 2. Sample Receipt and Extrusion Information for BY-106, Core 65.

Segment	Date Sampled	Date Received	Date Extruded	Liner Liq. (g)	Drain. Liq. Recovered (g)	Solids Recovered (g)	Sample Description
1	1/18/95	1/20/95	1/27/95	0.0	438.46	11.70 (upper half)	Collected light yellow drainable liquid, which was less turbid than the liquid from segments 4, 5, 6, 7, and 8. Last to extrude from the sampler was slushy, light yellow saltcake.
2	1/19/95	1/20/95	1/27/95	0.0	428.10	22.40 (upper half)	Collected turbid, light yellow-green drainable liquid followed by slushy, light yellow saltcake from the upper half of the sampler.
3	1/19/95	1/20/95	1/30/95	0.0	429.70	21.43 (upper half)	Collected turbid, light yellow-green drainable liquid followed by slushy, light yellow saltcake from the upper half of the sampler.
4	1/20/95	1/20/95	1/25/95	0.0	411.74	42.01 (upper half)	Opaque, yellow drainable liquid was recovered from the sampler before slushy, light yellow saltcake was collected from the upper half of the sampler.
5	1/20/95	1/20/95	1/26/95	0.0	409.48	34.58 (upper half)	Turbid, yellow-green drainable liquid was recovered first. Slushy, light yellow saltcake was recovered next from the upper half.
5A	1/20/95	1/20/95	1/30/95	0.0	0.0	0.30 (upper half)	No material was extruded from the sampler. A small amount of white, crusty solids were recovered from the sampler piston.
6	1/20/95	1/23/95	1/26/95	0.0	423.08	29.38 (upper half)	The last material to extrude from the sampler was slushy, light yellow saltcake. Collected first was light yellow, drainable liquid.
7	1/20/95	1/23/95	1/27/95	0.0	422.54	26.74 (upper half)	The last material to extrude from the sampler was slushy, light yellow saltcake. Collected first was light yellow, drainable liquid.
8	1/20/95	1/23/95	1/26/95	0.0	394.25	44.15 (upper half)	The last material to extrude from the sampler was slushy, light yellow saltcake. Collected first was light yellow, drainable liquid.
9	1/23/95	1/25/95	2/7/95	0.0	0.0	9.56 (upper half)	Recovered from the upper half of the segment was light yellow-green saltcake and no drainable liquid.
10	1/24/95	1/25/95	2/6/95	0.0	363.65	90.32 (upper half)	Collected first was turbid, yellow-green drainable liquid. Solids were observed towards the end of the extrusion. The first solids to appear were hard, crystalline chunks that ranged in color from white to gray. Remaining solids were wet, yellow-green saltcake.
11	1/24/95	1/25/95	2/6/95	0.0	82.73	4.91 (upper half)	Recovered solids were crystalline and light yellow in color. The drainable liquid was yellow-green in color and turbid.
12	1/24/95	1/25/95	2/3/95	0.0	44.25	0.0	The light brown, turbid liquid was different in appearance than the light yellow-green liquid obtained from the previous segments.
13	1/24/95	1/25/95	2/3/95	0.0	<5 mL (not collected)	57.15 (sludge) 74.49 (saltcake)	Collected approx. 5 inches of solids from the upper half of the sampler. The first two inches was a dark brown sludge and the final three inches were compacted white salt cake material coated with sludge. The two types of material separated cleanly and were collected in separate jars.

Analytical Results

The safety screening analytical results are presented in Tables 3, 4, and 5, which include the LabCore sample number. Column 2 of the tables indicate the sample preparation used, if any. As shown, analyses on fused samples are marked with "F", and samples marked with "D" indicate an acid dilution was performed on the sample before analysis.

Segment 13 of core 65 contained sludge and saltcake waste types, although the analytical results for sub-samples of both types are reported in Table 4. Therefore, some description of the sample numbers is necessary. Sample S95T000098 represents undigested saltcake material and sample S95T000099 represents the undigested sludge. Sample S95T000100 is the fusion digest of a saltcake aliquot, while S95T000101 is the fusion digest of a sludge aliquot.

No separable, presumably organic, liquid layers were observed in any segments.

TGA (Moisture Content)

Weight percent water by TGA was performed under a nitrogen atmosphere using procedure LA-560-112, Rev. A-2. All results are above the notification limit. Percent water was measured on the saltcake from cores 64 and 65 (segments 11 and 13 only), on the sludge sample from core 65, and on drainable liquid from core 64. For the core 64 saltcake, the trend is decreasing percent water with tank depth. Saltcake from segments 11, 13, the lower half of segment 4, and the upper half of segment 8 are particularly dry, averaging less than 12% water. Values are much higher for segments 11 and 13 saltcake from core 65, while the core 65 sludge sample average 37.31% water. As expected, the highest percent water values are found in the drainable liquid from core 64. Here, the values are in the 54-69% range.

A number of saltcake samples have relative percent difference (RPD) values greater than 10%. This is not surprising given the slushy, heterogenous nature of the saltcake, as indicated in Tables 1 and 2, and the small sample sizes used in the TGA analysis. No re-runs were performed, although third samples were run on samples S94T000372 and S94T000373. These results are 23.54% and 11.66%, respectively, and are not shown in Table 3, although they are included in the attached raw data. The action limit for percent water is a function of the DSC exotherm such that the DSC action limit must be exceeded before the TGA limit can be exceeded. In all but two of the samples with high RPD values, there is no DSC exotherm. For those remaining two samples, the DSC exotherms are relatively small and the TGA values are greater than 21%.

DSC (Energetics Content)

Analyses by DSC were performed under a nitrogen atmosphere using procedure LA-514-113, Rev B-1. Exotherms, albeit small, are observed on all drainable liquid samples. Saltcake samples from segments 2, 3, 4, and 8 of core 64 also display exothermic behavior. The saltcake from segment 13 of core 65 shows no exotherm, while the sludge from this segment has a relatively large exotherm. A third sample was run since the RPD between the sample and duplicate is greater than 10%. The sample, duplicate, and second duplicate runs give 417.9, 855.4, and 421.4 J/g respectively. All these results exceed the DSC notification limit on a dry-weight basis and an immediate notification was made. In several instances, samples showed more than one exotherm. In these

cases, the value of the first exotherm is reported. A third DSC run was performed under an atmosphere of air on the saltcake from segment 1 of core 64 (sample S94T000305). The scan is very similar to the runs performed under nitrogen and there is no exotherm.

As with the TGA runs, the RPD between sample and duplicate is greater than 10% for several samples. This is attributed to the lumpy, heterogenous nature of many of the samples. Samples with the highest RPD values were run a third time. These include samples S94T000308, S94T000309, S94T000311, and S94T000355 with second duplicate values of 175.7, 108.4, 0, and 68.8 J/g respectively. Samples S94T000305 and S94T000308 were run to 450° C rather than the prescribed 500° C because there was evidence the DSC sensor was being damaged by volatilized material. It is believed this is the cause of poor baselines a number of samples display at temperatures greater than 400° C.

Total Alpha

Total alpha analyses were performed on fusion digestions of the sludge and saltcake samples from segment 13 of core 65 using procedure LA-508-101, Rev. D-2. All results are well below the notification limit of 41 uCi/g. Although the RPD is greater than 10% for the sample and duplicate of the sludge sample (S95T000101), no re-run was performed because the result is below 2 uCi/g and, per Reference 1, exempt from the precision and accuracy requirements listed therein. The spike recoveries on the sludge and saltcake samples are below 90% due to self adsorption resulting from a high solids content on the spike mounts. Re-runs were not performed for the reason given above.

Cyanide

Analyses for cyanide were performed directly on all saltcake samples from core 64 and on the sludge sample from segment 13 of core 65 (sample S95T000099) per procedure LA-695-102, Rev. C-0. Results from core 64 are roughly 1000 times below the action limit of 30,000 ug/g, although the results on segments 11 and 13 of core 64 are particularly low. The sludge from core 65 is about three times more concentrated in cyanide, averaging 93.9 ug/g. It is noted that these segments also have very little moisture. Per Reference 1, results below 0.5% by weight (5,000 ug/g) are exempt from the precision and accuracy requirements listed therein, therefore no re-runs were performed. The RPD on duplicate results for the cyanide analyses are generally less than 10%, although the RPD values are high on samples from segments 6, 8, and 11 of core 64 and the sludge from segment 13 of core 65 as shown in Tables 3 and 4. All spike recoveries are within $\pm 10\%$ except for the upper half of segments 9 and 10, which have slightly low recoveries at about 85%.

Total Organic Carbon

Analyses for TOC were performed by direct persulfate oxidation on all saltcake samples from core 64 and on the sludge sample from segment 13 of core 65 (sample S95T000099) per procedure LA-342-100. The furnace oxidation method using procedure LA-344-105, Rev. B-3 was used on the drainable liquid samples from core 64.

Similar to the percent water results, there appears to be a trend toward lower TOC values on saltcake with sample depth. Results from the first three segments are in the 2300 ug C/g range, while the highest value in the bottom

five segments is 1450 ug C/g. There are significant differences between the upper and lower halves of segment 4 and between the saltcake and slurry of segment 8. Some of these differences may be due to the heterogenous samples. This is also the most likely explanation for the high RPD values found between the sample and duplicate analyses on many saltcake samples. One standard recovery is slightly below the TCP $\pm 10\%$ limit at 89.33. No re-runs were performed since all results are below 1% by weight (10,000 ug C/g) and, per Reference 1, exempt from the precision and accuracy requirements listed therein.

Analysis for TOC on the sludge from segment 13, core 65 was performed twice with very similar results: once without a spiked sample (sample S95T000099) and once with a spiked sample (sample S95T000734). Sample S95T000734 is the same material as sample S95T000099; they were taken from the same sample vial. As shown in Table 4, the amount of TOC in the sludge is significantly higher than in any saltcake sample. The spike recovery for sample S95T000734 is low at 55.5%, therefore the TOC result is most likely biased low. An initial, but not reported, spike recovery on the same sample is also near 50%. Investigation of the reason(s) for the low recovery are ongoing. Any needed remediation is expected to be resolved in time for the BY-106 90-day report.

Results on the drainable liquid from segments 3 and 10 of core 64 are similar to those of the core 64 saltcake. A TOC result is not available on the liquid from segment 6, core 64 due to insufficient sample. Samples S95T000004 and S95T000228 (Table 5) are aliquots from the same parent sample jar. The TOC content of these two samples are comparable as expected.

Ni and Li by Inductively Coupled Plasma

Concentration of the metals Ni and Li were determined by ICP using procedure LA-505-151 or LA-505-161. Analyses for Ni were performed on fusion digestions of saltcake and sludge from segments 11 and 13 of core 65. Results from segment 11 are less than the detection limit of 215 ug/g. A large increase in the Ni concentration is seen with the segment 13 saltcake (S95T000100). Here the value averages 6959 ug/g. The concentration in the segment 13 sludge (S95T000101) is roughly four times higher; an average of 29,513 ug/g for the sample and duplicate runs. Note from Table 2 that the saltcake from segment 13 appeared to be coated with the sludge, therefore the Ni results in the saltcake may be biased high. The RPD values from segment 13 are slightly above the 10% TCP limit. It is unlikely that re-runs on the same fusion digests would improve the RPD, hence no re-runs were performed. Samples will be re-digested and re-run at the customer's request.

Analyses for Li were performed on the drainable liquid from segment 12, core 65, and the saltcake (S95T000322) and sludge (S95T000101) of segment 13, core 65. Of the segments analyzed, these are the only two in which the chain of custody forms indicated that hydrostatic head fluid containing LiBr tracer was used. Both results give less-than values, although the detection limit was significantly lower for the sludge sample.

REFERENCES

- (1) WHC-SD-WM-TP-217, Rev. 0D, "Tank 241-BY-106 Tank Characterization Plan", Westinghouse Hanford Company, Richland, WA 99352, dated November 22, 1994.
- (2) WHC-SD-WM-TP-217, Rev. 1, "Tank 241-BY-106 Tank Characterization Plan", Westinghouse Hanford Company, Richland, WA 99352, dated January 24, 1995.
- (3) Internal Memo 71520-95-106, "Memorandum of Understanding for Tank 241-BY-106, Additional Core Sample", dated February 17, 1995.

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SAMPLE DATA SUMMARY

Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64

SEGMENT #: 1

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000305			% Water by TGA using Mettler	%	98.77	n/a	47.17	46.24	46.70	1.99	n/a	n/a	n/a
S94T000305			DSC Exotherm using Mettler	Joules/g	101.6	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000305			Cyanide by Microdist. & Spec.	ug/g	99.57	4.60e-01	30.5	29.9	30.20	1.99	92.20	1.980	n/a
S94T000305			TOC by Persulfate/Coulometry	ug/g	104.5	n/a	37.6	n/a	2.57e03	2.41E03	2.49e+03	6.43	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 2

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000308			% Water by TGA using Mettler	%	98.77	n/a	46.65	47.26	46.95	1.30	n/a	n/a	n/a
S94T000308			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	447	219	333.0	68.5	n/a	1.00e-01	n/a
S94T000308			DSC Exotherm using Mettler	Joules/g	101.6	n/a	237.0	116.4	176.7	68.3	n/a	n/a	n/a
S94T000308			Cyanide by Microdist. & Spec.	ug/g	99.57	4.60e-01	34.5	36.8	35.65	6.45	n/a	2.390	n/a
S94T000308			TOC by Persulfate/Coulometry	ug/g	89.33	19.80	2.85e+3	2.27e+3	2.56e+03	22.7	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64

SEGMENT #: 3

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000309			% Water by TGA using Mettler	%	99.34	n/a	38.31	32.2	35.26	17.3	n/a	n/a	n/a
S94T000309			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	191	167	179.0	13.4	n/a	1.00e-01	n/a
S94T000309			DSC Exotherm using Mettler	Joules/g	105.1	n/a	123.4	74.5	98.95	49.4	n/a	n/a	n/a
S94T000309			Cyanide by Microdist. & Spec.	ug/g	99.36	3.00e-01	44.5	45.1	44.80	1.34	92.20	1.440	n/a
S94T000309			TOC by Persulfate/Coulometry	ug/g	89.33	19.80	2.31e+3	2.25e+3	2.28e+03	2.63	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 4

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000310			% Water by TGA using Mettler	%	99.34	n/a	21.07	25.62	23.34	19.5	n/a	n/a	n/a
S94T000310			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	28	19	23.50	38.3	n/a	1.00e-01	n/a
S94T000310			DSC Exotherm using Mettler	Joules/g	105.1	n/a	21.1	14.2	17.65	39.1	n/a	n/a	n/a
S94T000310			Cyanide by Microdist. & Spec.	ug/g	99.36	3.00e-01	55.2	53.3	54.25	3.50	n/a	2.700	n/a
S94T000310			TOC by Persulfate/Coulometry	ug/g	101.0	25.10	4.18e03	4.41e03	4.30e+03	5.36	n/a	80.00	n/a

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000311			% Water by TGA using Mettler	%	99.11	n/a	9.70	9.78	9.740	0.82	n/a	n/a	n/a
S94T000311			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	397	137	267.0	97.4	n/a	1.00e-01	n/a
S94T000311			DSC Exotherm using Mettler	Joules/g	98.42	n/a	358.7	123.4	241.1	97.6	n/a	n/a	n/a
S94T000311			Cyanide by Microdist. & Spec.	ug/g	105.0	2.30e-01	23.2	24.3	23.75	4.63	106.0	1.490	n/a
S94T000311			TOC by Persulfate/Coulometry	ug/g	101.0	25.10	1.31e03	1.23e03	1.27e+03	6.30	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 5

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000326			% Water by TGA using Mettler	%	98.99	n/a	14.37	14.24	14.30	0.91	n/a	n/a	n/a
S94T000326			DSC Exotherm using Mettler	Joules/g	95.25	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000326			Cyanide by Microdist. & Spec.	ug/g	96.99	1.900	30.7	31.2	30.95	1.62	95.20	2.290	n/a
S94T000326			TOC by Persulfate/Coulometry	ug/g	95.67	37.60	7.33e02	9.94E02	8.64e+02	30.2	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 6

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000342			% Water by TGA using Mettler	%	98.60	n/a	18.01	15.64	16.83	14.1	n/a	n/a	n/a
S94T000342			DSC Exotherm using Mettler	Joules/g	101.9	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000342			Cyanide by Microdist. & Spec.	ug/g	96.99	1.900	22.1	18.7	20.40	16.7	n/a	1.730	n/a
S94T000342			TOC by Persulfate/Coulometry	ug/g	95.33	32.40	9.48E02	8.98e02	9.23e+02	5.42	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64

SEGMENT #: 8

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SEGMENT PORTION: ~~n/a~~ Slurry

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000345			% Water by TGA using Mettler	%	99.43	n/a	43.17	43.45	43.31	0.65	n/a	n/a	n/a
S94T000345			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	96	92	94.00	4.26	n/a	1.00e-01	n/a
S94T000345			DSC Exotherm using Mettler	Joules/g	95.25	n/a	54.3	52.4	53.35	3.56	n/a	n/a	n/a
S94T000345			Cyanide by Microdist. & Spec.	ug/g	103.0	9.50e-01	21.6	25.0	23.30	14.6	n/a	1.000	n/a
S94T000345			TOC by Persulfate/Coulometry	ug/g	95.33	32.40	2.86E03	3.02e03	2.94e+03	5.44	n/a	80.00	n/a

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000343			% Water by TGA using Mettler	%	98.60	n/a	8.26	11.57	9.915	33.4	n/a	n/a	n/a
S94T000343			DSC Exotherm using Mettler	Joules/g	101.9	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000343			Cyanide by Microdist. & Spec.	ug/g	105.0	2.30e-01	11.7	10.6	11.15	9.87	n/a	1.690	n/a
S94T000343			TOC by Persulfate/Coulometry	ug/g	98.00	25.30	1.05e03	1.05e03	1.05e+03	0.00	n/a	80.00	n/a

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000344			% Water by TGA using Mettler	%	99.43	n/a	17.65	20.47	19.06	14.8	n/a	n/a	n/a
S94T000344			DSC Exotherm using Mettler	Joules/g	95.25	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000344			Cyanide by Microdist. & Spec.	ug/g	103.0	9.50e-01	9.02	9.49	9.255	5.08	104.7	1.000	n/a
S94T000344			TOC by Persulfate/Coulometry	ug/g	98.00	25.30	9.40e02	8.23e02	8.82e+02	13.3	n/a	80.00	n/a

Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 9

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000346			% Water by TGA using Mettler	%	98.99	n/a	18.38	14.94	16.66	20.6	n/a	n/a	n/a
S94T000346			DSC Exotherm using Mettler	Joules/g	95.25	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000346			Cyanide by Microdist. & Spec.	ug/g	96.24	4.30e-01	28.1	29.7	28.90	5.54	85.50	1.950	n/a
S94T000346			TOC by Persulfate/Coulometry	ug/g	98.00	25.30	4.03e02	4.64e02	4.34e+02	14.1	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 10

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000372			% Water by TGA using Mettler	%	99.11	n/a	25.39	14.24	19.82	56.3	n/a	n/a	n/a
S94T000372			DSC Exotherm using Mettler	Joules/g	99.82	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000372			Cyanide by Microdist. & Spec.	ug/g	93.13	<9.00e-01	13.8	13.0	13.40	5.97	85.20	1.000	n/a
S94T000372			TOC by Persulfate/Coulometry	ug/g	93.33	17.90	1.70e+3	1.20e+3	1.45e+03	34.5	n/a	80.00	n/a

SEGMENT PORTION: L Lower Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000373			% Water by TGA using Mettler	%	99.11	n/a	20.10	17.41	18.76	14.3	n/a	n/a	n/a
S94T000373			DSC Exotherm using Mettler	Joules/g	99.82	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000373			Cyanide by Microdist. & Spec.	ug/g	96.24	4.30e-01	24.2	24.0	24.10	0.83	n/a	1.720	n/a
S94T000373			TOC by Persulfate/Coulometry	ug/g	93.33	17.90	1.34e+3	6.74e+2	1.01e+03	66.1	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 11

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000381			% Water by TGA using Mettler	%	99.31	n/a	3.51	4.05	3.780	14.3	n/a	n/a	n/a
S94T000381			DSC Exotherm using Mettler	Joules/g	96.66	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000381			Cyanide by Microdist. & Spec.	ug/g	93.13	<9.00e-01	3.0	3.7	3.350	20.9	n/a	1.000	n/a
S94T000381			TOC by Persulfate/Coulometry	ug/g	95.33	32.40	5.96E02	4.00e02	4.98e+02	39.4	n/a	80.00	n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64

SEGMENT #: 12

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count	Err%
S94T000390			% Water by TGA using Mettler	%	99.34	n/a	26.83	27.76	27.30	3.41	n/a	n/a		n/a
S94T000390			DSC Exotherm using Mettler	Joules/g	96.66	n/a	0	0	0.000	n/a	n/a	n/a		n/a
S94T000390			Cyanide by Microdist. & Spec.	ug/g	94.95	3.72e-01	2.14e1	2.19e1	2.16e+01	2.31	93.90	1.000		n/a
S94T000390			TOC by Persulfate/Coulometry	ug/g	93.33	29.80	1.86e+3	1.22e+3	1.54e+03	41.6	n/a	80.00		n/a

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Table 3. BY-106 Analytical Summary - Core 64 Solids.
BY-106

CORE NUMBER: 64
SEGMENT #: 13

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000391			% Water by TGA using Mettler	%	100.2	n/a	12.26	10.15	11.21	18.8	n/a	n/a	n/a
S94T000391			DSC Exotherm using Mettler	Joules/g	101.6	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S94T000391			Cyanide by Microdist. & Spec.	ug/g	94.95	3.72e-01	2.27e0	2.42e0	2.34e+00	6.40	n/a	1.000	n/a
S94T000391			TOC by Persulfate/Coulometry	ug/g	93.33	29.80	1.11e+2	1.23e+2	1.17e+02	10.3	n/a	80.00	n/a

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Table 4. BY-106 Analytical Summary - Core 65 Solids.
BY-106

CORE NUMBER: 65

SEGMENT #: 11

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000084			% Water by TGA using Mettler	%	98.82	n/a	25.28	20.63	22.95	20.3	n/a	n/a	n/a
S95T000084			DSC Exotherm using Mettler	Joules/g	101.2	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S95T000085	F		Nickel -ICP-Fusion	ug/g	104.8	4.50e-02	< 215	<216	n/a	n/a	92.20	215.0	n/a

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Table 4. BY-106 Analytical Summary - Core 65 Solids.
BY-106

CORE NUMBER: 65
SEGMENT #: 13

SEGMENT PORTION: U Upper Half of Segment

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000098			% Water by TGA using Mettler	%	99.26	n/a	27.38	28.93	28.16	5.51	n/a	n/a	n/a
S95T000098			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S95T000098			DSC Exotherm using Mettler	Joules/g	100.2	n/a	0	0	0.000	n/a	n/a	n/a	n/a
S95T000099			% Water by TGA using Mettler	%	99.26	n/a	38.01	36.62	37.31	3.73	n/a	n/a	n/a
S95T000099			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	667	1365	1016	68.7	n/a	n/a	n/a
S95T000099			DSC Exotherm using Mettler	Joules/g	100.2	n/a	417.9	855.4	636.6	68.7	n/a	n/a	n/a
S95T000099			Cyanide by Microdist. & Spec.	ug/g	106.0	1.040	98.9	88.9	93.90	10.6	93.00	17.90	n/a
S95T000099			TOC by Persulfate/Coulometry	ug/g	92.67	31.80	2.08e4	2.17e4	2.12e+04	4.24	n/a	80.00	n/a
S95T000100	F		Nickel -ICP-Fusion	ug/g	98.02	1.00e-02	6510.3073	7407.396	6959	12.9	n/a	102.0	n/a
S95T000100	F		Alpha of Digested Solid	uCi/g	92.75	<2.90e-03	< 4.82E-3	5.99e-3	n/a	n/a	68.10	7.00e-03	339.5
S95T000101	F		Lithium -ICP-Fusion	ug/g	104.3	7.00e-03	<52.5	<51.9	n/a	n/a	n/a	50.90	n/a
S95T000101	F		Nickel -ICP-Fusion	ug/g	98.02	10.08	31216.840	27809.59	29513	11.5	n/a	105.0	n/a
S95T000101	F		Alpha of Digested Solid	uCi/g	92.75	<2.90e-03	2.90E-1	2.15e-1	2.53e-01	29.7	85.90	2.32e-01	79
S95T000322	F		Lithium -ICP-Fusion	ug/g	98.22	2.00e-03	<439.1900	<439.190	n/a	n/a	85.82	439.0	n/a
S95T000734			TOC by Persulfate/Coulometry	ug/g	92.00	25.10	1.99e4	1.92e4	1.96e+04	3.58	55.50	80.00	n/a

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Table 5. BY-106 Analytical Summary - Cores 64 & 65 Liquids
BY-106

CORE NUMBER: 64

SEGMENT #: 3

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000004			Tot. Organic Carbon by Coul.	ug/mL	102.0	<5.000	2.30e03	2.32e03	2.31e+03	0.87	89.80	55.00	n/a
S95T000004			% Water by TGA using Mettler	%	97.79	n/a	68.57	67.93	68.25	0.94	n/a	n/a	n/a
S95T000004			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	98	97	97.50	1.03	n/a	1.00e-01	n/a
S95T000004			DSC Exotherm using Mettler	Joules/g	102.3	n/a	31.0	30.9	30.95	0.32	n/a	n/a	n/a
S95T000228			Tot. Organic Carbon by Coul.	ug/mL	100.3	<5.000	1.86E03	1.96E03	1.91e+03	5.24	95.30	55.00	n/a

Table 5. BY-106 Analytical Summary - Cores 64 & 65 Liquids
BY-106

CORE NUMBER: 64
SEGMENT #: 6

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000355			Tot. Organic Carbon by Coul.	ug/mL	102.0	<5.000	n/a	n/a	n/a	n/a	n/a	55.00	n/a
S94T000355			% Water by TGA using Mettler	%	98.99	n/a	54.57	55.22	54.89	1.18	n/a	n/a	n/a
S94T000355			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	78	193	135.5	84.9	n/a	1.00e-01	n/a
S94T000355			DSC Exotherm using Mettler	Joules/g	105.4	n/a	35.4	87.2	61.30	84.5	n/a	n/a	n/a

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Table 5. BY-106 Analytical Summary - Cores 64 & 65 Liquids
BY-106

CORE NUMBER: 64
SEGMENT #: 10

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S94T000371			Tot. Organic Carbon by Coul.	ug/mL	102.0	<5.000	2.29e03	2.42e03	2.36e+03	5.52	n/a	55.00	n/a
S94T000371			% Water by TGA using Mettler	%	97.79	n/a	63.85	64.07	63.96	0.34	n/a	n/a	n/a
S94T000371			DSC Exotherm Dry Calculated	Joules/g Dry	n/a	n/a	123	122	122.5	0.82	n/a	1.00e-01	n/a
S94T000371			DSC Exotherm using Mettler	Joules/g	102.3	n/a	44.5	44.0	44.25	1.13	n/a	n/a	n/a

Table 5. BY-106 Analytical Summary - Cores 64 & 65 Liquids
BY-106

CORE NUMBER: 65
SEGMENT #: 11

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000229			DSC Exotherm using Mettler	Joules/g	101.2	n/a	19.9	20.1	20.00	1.00	n/a	n/a	n/a

Table 5. BY-106 Analytical Summary - Cores 64 & 65 Liquids
BY-106

CORE NUMBER: 65
SEGMENT #: 12

SEGMENT PORTION: Drainable Liquid

Sample#	R	A#	Analyte	Unit	Standard %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Count Err%
S95T000109			DSC Exotherm using Mettler	Joules/g	94.90	n/a	54.1	59.4	56.75	9.34	n/a	n/a	n/a
S95T000109	D		Lithium-ICP-Acid Dil.	ug/mL	96.20	2.00e-03	< 5.01	<5.01	n/a	n/a	97.00	5.010	n/a

28

WHC-SD-WM-DP-103, REV. 0

WHC-SD-WM-DP-103, REV. 0

IMMEDIATE NOTIFICATION DOCUMENTATION

Author: Kevin E Bell at ~WHC103

Date: 3/29/95 3:14 PM

WHC-SD-WM-DP-103, REV. 0

Priority: Normal

Subject: DSC ACTION LIMIT VIOLATED ON BY-106, CORE 65

----- Message Contents -----

The notification limit of >481 J/g (dry-weight basis) by differential scanning calorimetry (DSC) was violated on the upper half sludge from segment 13, core 65 of tank BY-106. As required by the BY-106 TCP (WHC-SD-WM-TP-217, Rev. 1), an immediate notification was made by Mr. D. Hardy of the 222-S Laboratory to the East Tank Farms Operations Shift Manager on 3/29/95. This cc:Mail is the required follow-up written notification of that initial, verbal notification.

The results for the segment 13 sludge sample are 667 J/g for the sample and 1365 J/g on the duplicate. A third run was performed with a result of 672 J/g. These results are on a dry-weight basis. They are corrected values calculated using the DSC value and the percent water by thermogravimetric analysis (TGA) on the respective wet sample. The average percent water value is 37.31%. It is interesting to note that saltcake collected from the upper half of the same segment displayed no exotherms. This material extruded immediately before the sludge material, and was collected in a separate jar.

Please call me at 373-1629 if you have any questions.

Kevin Bell,
BY-106 Project Coordinator

WHC-SD-WM-DP-103, REV. 0

UNDIGESTED SAMPLE RESULTS - DIRECT

BY106

90

KB

LABCORE Data Entry Template for Worklist# 206

Analyst: KLV **Instrument:** DSC01 **Method:** LA-514-113 B-1

Worklist Comment: Please run BY-106 under N2. BDV

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	28.9	N/A	Joule/g
2	SAMPLE	S94T000305 N ₂ 0			DSC-01	SOLID	N/A	0		Joule/g
3	DUP	S94T000305 N ₂ 0			DSC-01	SOLID	0	0	N/A	Joule/g
	Std	12N14A					28.45	27.8		
4	DUP	S94T000305 air 0			DSC-01	SOLID	0	0	N/A	Joule/g
5	SAMPLE	S94T000308 0			DSC-01	SOLID	N/A	237.0		Joule/g
6	DUP	S94T000308 0			DSC-01	SOLID	237.0	116.4	N/A	Joule/g
7	DUP	S94T000308 0			DSC-01	SOLID	237.0	175.7	N/A	Joule/g

Final page for worklist # 206

XB 4/20/95

Analyst Signature

12/29/94
Date

WHC-SD-WM-DP-103, REV. 0

Entered & Verified 12/22/94 JmFrye

See attached page for signatures

Data Entry Comments:

S94T000305 had two endotherms one at 128.1°C with a delta H of 1074.5 J/g and another at 266.5°C with a delta H of 45.3 J/g. The second duplicate of S94T000305 was run under air. S94T000308 had one endotherm at 133.6°C with a delta H of 976.5 J/g. S94T000308 first duplicate had one exotherm at 423.7°C with a delta H of 80 J/g.

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

LABCORE Data Entry Template for Worklist# 206

Analyst: KLV Instrument: DSC01 _____ Method: LA-514-113

Worklist Comment: Please run BY-106 under N2. BDV

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	28.9	N/A	Joule/g
2	SAMPLE	S94T000305	0		DSC-01	SOLID	N/A			Joule/g
3	DUP	S94T000305	0		DSC-01	SOLID			N/A	Joule/g
4	SAMPLE	S94T000308	0		DSC-01	SOLID	N/A			Joule/g
5	DUP	S94T000308	0		DSC-01	SOLID			N/A	Joule/g

Final page for worklist # 206

XS 4/22/94

KLV
Analyst Signature

12/11/94
Date

Data Entry Comments:

Std # 12N14A

DSC STD

6.650 mg

Rate: 10.0 °C/min

File: 00098.001

DSC METTLER

11-Dec-94

Ident: 0.0

222-S Laboratory

<OX>

5 mW

Integration

Delta H 192 mJ

28.9 J/g

Peak 160.4 °C

-8.8 mW

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 34 TO 41.

120.

140.

160.

180. °C

K. Vogel 12/11/94

S94T000305 N2

18.821 mg

Rate: 10.0 °C/min

File: 00099.001 DSC METTLER 11-Dec-94
Ident: 0.0 222-S Laboratory

EXO >

20. mW

WHC-SD-WM-DP-103, REV. 0
BEST AVAILABLE COPY

Integration
Delta H 853 mJ
45.3 J/g
Peak 266.5°C
-3.5 mW

Integration
Delta H20223 mJ
1074.5 J/g
Peak 128.1°C
-55.5 mW

100. 200. 300. 400. °C

S94T000305 (DUP) N2

19.628 mg

Rate: 10.0 °C/min

File: 00100.001 DSC METTLER 11-Dec-94
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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Handwritten signature
12/29/94

S94T000308 N2
18.545 mg

Rate: 10.0 °C/min

File: 00101.001 DSC METTLER 11-Dec-94
Ident: 0.0 222-S Laboratory

exo >

BEST AVAILABLE COPY

Integration
Delta H 4395 mJ
237.0 J/g
Peak 335.5°C
6.3 mW

Integration
Delta H 18109 mJ
976.5 J/g
Peak 133.6°C
-47.4 mW

WHC-SD-WM-DP-103, REV. 0

S94T000308 (DUP) N2

15.261 mg

Rate: 10.0 °C/min

File: 00102.001 DSC METTLER 11-Dec-94

Ident: 0.0 222-S Laboratory

exo >

20. mW

100. 200. 300. 400. °C

S94T000308 (DUP) N2

11.552 mg

Rate: 10.0 °C/min

File: 00103.001

DSC METTLER

11-Dec-94

Ident: 0.0 222-S Laboratory

exo >

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WHC-SD-WM-DP-103, REV. 0

100. 200. 300. 400. °C

DSC STD
6.650 mg

Rate: 10.0 °C/min

File: 00120.001 DSC METTLER 15-Dec-94
Ident: 0.0 222-S Laboratory

exo

5. mW

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

Integration
Delta H 185 mJ
Peak 160.4 °C
-8.2 mW

120. 140. 160. 180. °C

Handwritten: 12/15/94

S94T000305 AIR
12.813 mg

Rate: 10.0 °C/min

File: 00121.001 DSC METTLER 15-Dec-94
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

LABCORE Data Entry Template for Worklist# 207

Analyst: DWS Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 under N2. BDV

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12014A			DSC-01	SOLID	28.45	29.1	N/A	Joule/g
2	SAMPLE	S94T000309	0		DSC-01	SOLID	N/A	123.4		Joule/g
3	DUP	S94T000309	0		DSC-01	SOLID	123.4	74.5	N/A	Joule/g
4	STD				DSC-01	SOLID	28.45	29.9	N/A	Joule/g
5	DUP	S94T000309	0		DSC-01	SOLID	123.4	108.4	N/A	Joule/g
6	SAMPLE	S94T000310	0		DSC-01	SOLID	N/A	21.1		Joule/g
7	DUP	S94T000310	0		DSC-01	SOLID	21.1	14.2	N/A	Joule/g

Final page for worklist # 207

See attached page
Analyst Signature

[Signature]

Verified by Blandina Valenzuela

Date 1/5/95

1/6/95

1/16/95

Data Entry Comments: S94T000309 had one endotherm of 809.2 J/g at 121.4°C

and another exotherm at 431.4°C with a delta H of 88.7 J/g. S94T000310 had an endotherm at 139.3°C with a delta H of 674.7 J/g and another

Units shown for QC (SPK) may not reflect the actual units. exotherm at 321.3°C with a delta H of 53.9 J/g. Page: 1

LABCORE Data Entry Template for Worklist# 207

Analyst: DWS Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 under N2. BDV

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	29.1	N/A	Joule
2	SAMPLE	S94T000309	0		DSC-01	SOLID	N/A			Joule
3	DUP	S94T000309	0		DSC-01	SOLID			N/A	Joule
4	SAMPLE	S94T000310	0		DSC-01	SOLID	N/A			Joule
5	DUP	S94T000310	0		DSC-01	SOLID			N/A	Joule

Final page for worklist # 207

Analyst Signature

12-19-84
Date

Data Entry Comments:

Indium STD# 12N14-A

DSC STD
6.650 mg

Rate: 10.0 °C/min

File: 00011.001
Ident: 0.0

DSC METTLER 19-Dec-94
222-S Laboratory

exo >

5. mW

Integration

Delta H 193 mJ

29.1 J/g

Peak 160.7°C

-7.8 mW

WHC-SD-WM-DP-103, REV.0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 44 TO 50.

120.

140.

160.

180. °C

David W Smith
12-19-94

S94T000309 N2

6.390 mg

Rate: 10.0 °C/min

File: 00013.001 DSC METTLER 19-Dec-94

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

exo >

10. mW

Integration

Delta H 789 mJ

123.4 J/g

Peak

264.5°C

1.7 mW

Integration

Delta H 5171 mJ

809.2 J/g

Peak

121.4°C

-15.1 mW

Integration

Delta H 567 mJ

88.7 J/g

Peak

431.4°C

2.9 mW

100.

200.

300.

400.

°C

S94T000309 (DUP) N2

28.720 mg

Rate: 10.0 °C/min

File: 00015.001 DSC METTLER 19-Dec-94

Ident: 0.0 222-S Laboratory

<Ox>

WHC-SD-WM-DP-103, REV. 0

100. 200. 300. 400. °C

DSC STD

6.416 mg

Rate: 10.0 °C/min

File: 00038.001

DSC METTLER

22-Dec-94

Ident: 0.0

222-S Laboratory

exo >

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV. 0

120.

140.

160.

180. °C

David W. Smith
12-22-94

S94T000309 N2
18.722 mg

Rate: 10.0 °C/min

File: 00039.001 DSC METTLER 22-Dec-94
Ident: 0.0 222-S Laboratory

exo >

20. mW

WHC-SD-WM-DP-103, REV. 0

°C

400.

300.

200.

100.

S94T000310 N2
22.712 mg

Rate: 10.0 °C/min

File: 00041.001 DSC METTLER 22-Dec-94
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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S941000310 (DUP) N2
39.416 mg

Rate: 10.0 °C/min

File: 00043.001 DSC METTLER 22-Dec-94
Ident: 0.0 222-S Laboratory

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 208

Analyst: KLK Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 under N2. BDV WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	28.0	N/A	Joule
2	SAMPLE	S94T000311	0		DSC-01	SOLID	N/A	358.7		Joule
3	DUP	S94T000311	0		DSC-01	SOLID	358.7	123.4	N/A	Joule
4	DUP	S94T000311	0		DSC-01	SOLID	358.7	0	N/A	Joule

Final page for worklist # 208

Analyst Signature

Date

Entered and verified 12/22/94 J.M. Lige

See attached page for signature

Data Entry Comments:

S94T000311 has 2 endotherms; one at 116.1°C with a Delta H of 377.4 J/g and the other at 278.4°C with a Delta H of 72.8 J/g. The second duplicate of S94T000311 contained an exotherm, however it was not integrated due to the fact it never returned back to the baseline.

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

Page: 1

B. Valenzuela
12/12/94

LABCORE Data Entry Template for Worklist# 208

Analyst: KLV Instrument: DSC01 _____ Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 under N2. BDV **WHC-SD-WM-DP-103, REV. 0**

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	<u>12N14A</u>			DSC-01	SOLID	_____	_____	N/A	Joule <u>1/9</u>
2	SAMPLE	S94T000311	0		DSC-01	SOLID	N/A	_____	_____	Joule <u>3</u>
3	DUP	S94T000311	0		DSC-01	SOLID	_____	_____	N/A	Joule <u>9</u>

Final page for worklist # 208

X8 #128/s.

Analyst Signature

12/9/94
Date

Data Entry Comments:

Std # 12N14A

DSC STD
6.619 mg

Rate: 10.0 °C/min

File: 00089.001

DSC METTLER

09-Dec-94

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 53 TO 56.

[Signature] 12/9/94

S94T000311 N2
 17.919 mg
 Rate: 10.0 °C/min
 File: 00092.001 DSC METTLER 09-Dec-94
 Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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Integration
 Delta H 6762 mJ
 377.4 J/g
 Peak 116.1 °C
 -13.8 mW

Integration
 Delta H 1305 mJ
 72.8 J/g
 Peak 278.4 °C
 -5.5 mW

Integration
 Delta H 6428 mJ
 358.7 J/g
 Peak 475.3 °C
 29.5 mW

594T000311 (DUP) N2

11.803 mg

Rate: 10.0 °C/min

File: 00093.001 DSC METTLER 09-Dec-94

Ident: 0.0 222-S Laboratory

Integration
Delta H 4159 mJ
352.4 J/g
Peak 117.0 °C
-9.2 mW

Integration
Delta H 968 mJ
82.1 J/g
Peak 290.1 °C
-3.9 mW

Integration
Delta H 1456 mJ
123.4 J/g
Peak 433.6 °C
5.1 mW

WHC-SD-WM-DP-103, REV. 0

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File: 00095.001

DSC NETTLER 09-Dec-94

Ident: 0.0

222-S Laboratory

S94T000311 (DUP) N2

19.993 mg

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

Integration

Delta H 2275 mJ

113.8 J/g

Peak 294.6°C

-11.3 mW

Integration

Delta H 5117 mJ

255.9 J/g

Peak 125.7°C

-10.4 mW

ΔCp

10. mW

400.

300.

200.

100.

LABCORE Data Entry Template for Worklist# 249

Analyst: SMF Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: PLEASE RUN BY-106 DSC UNDER N2. BDV WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD				DSC-01	SOLID	28.45	27.1	N/A	Joule/g
2	SAMPLE	S94T000326	0		DSC-01	SOLID	N/A	0		Joule/g
3	DUP	S94T000326	0		DSC-01	SOLID	0	0	N/A	Joule/g
4	SAMPLE	S94T000346	0		DSC-01	SOLID	N/A	0		Joule/g
5	DUP	S94T000346	0		DSC-01	SOLID	0	0	N/A	Joule/g

Final page for worklist # 249

See attached for signatures
Analyst Signature

[Signature]

Verified by Blandina Valenzuela

1/4/95
Date

1/10/95

1/11/95

Data Entry Comments:

S94T000326 had two endotherms - one at 122°C with a delta H of 276.2 J/g and the second at 305.4°C with a delta H of 143.8 J/g. S94T000346 had two endotherms the first at 147.4°C

with a delta H of 206.0 J/g and the second at 283.4 J/g with a delta H of 96.7 J/g

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

Page: 1

LABCORE Data Entry Template for Worklist# 249

Analyst: SMF Instrument: DSC01 _____ Method: LA-514-113/B-1

Worklist Comment: PLEASE RUN BY-106 DSC UNDER N2. BDV **WHC-SD-WM-DP-103, REV. 0**

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12 N14A			DSC-01	SOLID		27.1	N/A	Joule/g
2	SAMPLE	S94T000326	0		DSC-01	SOLID	N/A	142.9		Joule/g
3	DUP	S94T000326	0		DSC-01	SOLID		84.8	N/A	Joule/g
4	SAMPLE	S94T000346	0		DSC-01	SOLID	N/A			Joule/g
5	DUP	S94T000346	0		DSC-01	SOLID			N/A	Joule/g

4/28/95

Final page for worklist # 249

Lusie M. Fulton
Analyst Signature

12-25-94
Date

Data Entry Comments:

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

Page: 1

DSC STD
6.416 mg

Rate: 10.0 °C/min

File: 00064.001 DSC METTLER 25-Dec-94
Ident: 0.0 222-S Laboratory

exo

Integration
Delta H 174 mJ
27.1 J/g
Peak 160.2°C
-8.1 mW

WHC-SD-WM-DP-103, REV. 0

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SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 57 TO 63.

120. 140. 160. 180. °C

Jessie M. Fulton

12/25/94 gmf

S94T000326 N2
19.055 mg
Rate: 10.0 °C/min
File: 00066.001 DSC METTLER 25-Dec-94
Ident: 0.0 222-S Laboratory

Integration
Delta H 5263 mJ
276.2 J/g
Peak 122.4°C
-9.6 mW

Integration
Delta H 2740 mJ
143.8 J/g
Peak 305.4°C
-14.2 mW

S94T000326 (DUP) N2

10.223 mg

Rate: 10.0 °C/min

File: 00068.001

DSC METTLER

25-Dec-94

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

S94T000346 N2

18.795 mg

Rate: 10.0 °C/min

File: 00070.001

Ident: 0.0

DSC METTLER 25-Dec-94

222-S Laboratory

S94T000346 (DUP) N2
 17.877 mg
 Rate: 10.0 °C/min
 File: 00072.001 DSC METTLER 25-Dec-94
 Ident: 0.0 222-S Laboratory

BEST AVAILABLE COPY

LABCORE Data Entry Template for Worklist# 250

Analyst: KL Instrument: DSC01 Method: LA-514-113 1-22-95
B-1

Worklist Comment: Please run BY-106 DSC under N2. BDV

WHC-SD-WM-DP-103, REV. 0

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	12N14A		DSC-01	SOLID	28.45	29.0	N/A	Joule
2 SAMPLE	S94T000342	0	DSC-01	SOLID	N/A	Ø		Joule
3 DUP	S94T000342	0	DSC-01	SOLID	Ø	Ø	N/A	Joule
4 SAMPLE	S94T000343	0	DSC-01	SOLID	N/A	Ø		Joule
5 DUP	S94T000343	0	DSC-01	SOLID	Ø	Ø	N/A	Joule

Final page for worklist # 250

K2 4/28/95

Analyst Signature

Date

1-22/95

1-24-95

1-25-95

Verified by Blandina Valenzuela

Data Entry Comments:

S94T000342 produced one endotherm at 156.7°C
 with a delta H of 558.0 J/g. S94T000343 produced one
 endotherm at 111°C with a delta H of 266.7 J/g

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

DSC STD Std# 12N14A
6.722 mg 12N14A
Rate: 10.0 °C/min

File: 00061.001
Ident: 0.0

DSC METTLER 21-Jan-95
222-S Laboratory

exo >

10. mW

Integration
Delta H 195 mJ
29.0 J/g
Peak 158.7 °C
-15.1 mW

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 65 TO 69.

120. 140. 160. 180. °C

[Signature] 1-22-95

1/23/95 80V

S94X000342 N2

16.186 mg

Rate: 10.0 °C/min

File: 00062.001

DSC METTLER

21-Jan-95

Ident: 0.0

222-S Laboratory

exo >

5 mW

WHC-SD-WM-DP-103, REV. 0

Integration
Delta H 9032 mJ
558.0 J/g
Peak 156.7 °C
-14.2 mW

S94T000342 (DUP) N2

15.528 mg

Rate: 10.0 °C/min

File: 00064.001

DSC METTLER

21-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

S94T000343 N2
17.193 mg

Rate: 10.0 °C/min

File: 00065.001 DSC METTLER 21-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

S94T000343 (DUP) N2

17.612 mg

Rate: 10.0 °C/min

File: 00066.001 DSC METTLER 21-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 253

Analyst: _____ Instrument: DSC01 _____ Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 DSC under N2; upper temp limit 450. BDV

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	27.1	N/A	Joule
2	SAMPLE	S94T000344	0		DSC-01	SOLID	N/A	0		Joule
3	DUP	S94T000344	0		DSC-01	SOLID	0	0	N/A	Joule
4	SAMPLE	S94T000345	0		DSC-01	SOLID	N/A	54.3		Joule
5	DUP	S94T000345	0		DSC-01	SOLID	54.3	52.4	N/A	Joule

Final page for worklist # 253

2/8 4/22/95

Analyst Signature

Date

Verified by Blandina Valenzuela

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments:

S94T000344 produced one endotherm at 121.6°C with a delta H of 410.4 J/g. S94T000345 produced one endotherm at 134.9°C with a delta H of 870.5 J/g. S94T000345 also produced a

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

second smaller exotherm at 223.7°C with a ΔH of 5.8 J/g.

Page: 1

DSC STD

6.722 mg

Std # 9 mp
12N14A0 h2p95

Rate: 10.0 °C/min

File: 00074.001

Ident: 0.0

DSC METTLER

22-Jan-95

222-S Laboratory

exo

5. mW

Integration
Delta H 182 mJ
27.1 J/g
Peak 158.4°C
-13.1 mW

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 71 TO 75.

120.

140.

160.

180. °C

71

[Signature] 1-23-95

S94T000344 N2
12.541 mg

File: 00075.001 DSC METTLER 22-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

exo >

5. mW

WHC-SD-WM-DP-103, REV. 0

Integration
Delta H 5147 mJ
Peak 410.4 J/g
121.6 °C
-8.5 mW

100. 200. 300. 400. °C

S94T000344 (DUP) N2

14.801 mg

Rate: 10.0 °C/min

File: 00076.001 DSC METTLER 22-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

exo>

5. mW

Integration
Delta H 5402 mJ
Peak 365.0 J/g
119.8 °C
-8.5 mW

100. 200. 300. 400. °C

S94T000345 N2

17.853 mg

File: 00077.001

Ident: 0.0

DSC METTLER 22-Jan-95
222-S Laboratory

Rate: 10.0 °C/min

exo

20. mW

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

°C

400.

300.

200.

100.

S94T000345 (DUP) N2

14.181 mg

Rate: 10.0 °C/min

File: 00078.001

22-Jan-95

DSC METTLER

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

LABCORE Data Entry Template for Worklist# 290

Analyst: DWS/KLV Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 DSC under N2, upper temp limit 450. bdv

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	LIQUID	28.45	30.00	N/A	Joule/g
2	SAMPLE	S94T000355	0		DSC-01	LIQUID	N/A	35.4		Joule/g
3	DUP	S94T000355	0		DSC-01	LIQUID	35.4	87.2	N/A	Joule/g
4	STD				DSC-01	LIQUID	28.45	27.8	N/A	Joule/g
5	DUP	S94T000355	0		DSC-01	LIQUID	35.4	68.8	N/A	Joule/g

2/3 4/22/95

Final page for worklist # 290

See attached for signatures

Analyst Signature

2/2/95

Date

2-3-95

RC Jones

Verified by Blandina Valenzuela

2-6-95

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments: S94T000355 produced one endotherm at 119.5°C with a delta H of 1254.5 J/g.

LABCORE Data Entry Template for Worklist# 290

Analyst: DWS Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 DSC under N2, upper temp limit 450. bdv

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12W14A			DSC-01	LIQUID	28.45	30.0	N/A	Joule/
2	SAMPLE	S94T000355	0		DSC-01	LIQUID	N/A	35.4		Joule/
3	DUP	S94T000355	0		DSC-01	LIQUID	35.4	87.2	N/A	Joule/

Final page for worklist # 290

7/8 4/28/95

Analyst Signature

Date

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments:

DSC STD 12Ni4A
6.722 mg

gms

Rate: 10.0 °C/min

File: 00113.001
Ident: 0.0

DSC METTLER
222-S Laboratory

exo >

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 78 TO 82.

1-18-85 David A. Smith

S94T000355
13.465 mg

Rate: 10.0 °C/min

File: 00117.001
Ident: 0.0

DSC METTLER
222-S Laboratory

27-Jan-95

S94T000355 (DUP) N2

13.385 mg

Rate: 10.0 °C/min

File: 00120.001 DSC METTLER 27-Jan-95

Ident: 0.0 222-S Laboratory

exo >

DSC STD 12N14A
6.555 mg *gmf 1/31/95*

Rate: 10.0 °C/min

File: 00008.001 DSC METTLER 30-Jan-95
Ident: 0.0 222-S Laboratory

exo >

40. mW

Integration
Delta H 183 mJ
Peak 27.8 J/g
158.9 °C
-13.2 mW

WHC-SD-WM-DP-103, REV. 0

120. 140. 160. 180. °C

gmf 1/31/95

S94T000355 N2
12.995 mg

File: 00011.001 DSC METTLER 30-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

exo >

WHC-SD-WM-DP-103, REV. 0

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LABCORE Data Entry Template for Worklist# 347

Analyst: DWS Instrument: DSC01 Method: LA-514-113 13-1

Worklist Comment: Please run BY-106 DSC under N2. bdv

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14-A			DSC-01	SOLID	28.45	28.4	N/A	Joule
2	SAMPLE	S94T000372	0		DSC-01	SOLID	N/A	Ø		Joule
3	DUP	S94T000372	0		DSC-01	SOLID	Ø	Ø	N/A	Joule
4	SAMPLE	S94T000373	0		DSC-01	SOLID	N/A	Ø		Joule
5	DUP	S94T000373	0		DSC-01	SOLID	Ø	Ø	N/A	Joule

Final page for worklist # 347

XB 4/24/95

[Signature]
Analyst/Signature

1-22-95
Date

[Signature]

1-24-95

Verified by B. Blandina Valenzuela
JMF
1/25/95

1-25-95

Data Entry Comments: S94T000372 produced one endotherm at 127.8°C

with a delta H of 587.7 J/g. S94T000373 produced one endotherm
at 148.5°C with a delta H of 565.6 J/g.

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

Page: 1

DSC STD

6.722 mg

Rate: 10.0 °C/min

File: 00068.001

Ident: 0.0

DSC METTLER

22-Jan-95

222-S Laboratory

exo

10. mW

Integration

Delta H 191 mJ

28.4 J/g

Peak 158.4 °C

-14.8 mW

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 84 TO 88.

120.

140.

160.

180. °C

David A. Smith 1-22-95

S94T000372 N2
30.362 mg

Rate: 10.0 °C/min

File: 00069.001 DSC METTLER 22-Jan-95
Ident: 0.0 222-S Laboratory

exo >

10. mW

Integration
Delta H 17842 mJ
587.7 J/g
Peak 127.8°C
-26.6 mW

WHC-SD-WM-DP-103, REV. 0

°C

400.

300.

200.

100.

S94T000372 (DUP) N2

35.008 mg

Rate: 10.0 °C/min

File: 00070.001

DSC METTLER

22-Jan-95

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

<exo>

20. mW

Integration
Delta H20327 mJ
580.6 J/g
Peak 145.5°C
-31.2 mW

100.

200.

300.

400.

°C

S94T000373 N2

32.481 mg

Rate: 10.0 °C/min

File: 00071.001

DSC METTLER

22-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

S94T000373 (DUP) N2

30.502 mg

Rate: 10.0 °C/min

File: 00072.001

Ident: 0.0

DSC METTLER 22-Jan-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 349

Analyst: KLV Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 DSC under N2. bdv

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	SOLID	28.45	27.5	N/A	Joule/g
2	SAMPLE	S94T000381	0		DSC-01	SOLID	N/A	Ø		Joule/g
3	DUP	S94T000381	0		DSC-01	SOLID	Ø	Ø	N/A	Joule/g
4	SAMPLE	S94T000390	0		DSC-01	SOLID	N/A	Ø		Joule/g
5	DUP	S94T000390	0		DSC-01	SOLID	Ø	Ø	N/A	Joule/g

Final page for worklist # 349

X/8 4/28/95

[Signature]
Analyst Signature

1-12-95
Date

[Signature]

1-24-95

Verified by Blandina Valenzuela

1-25-95

Data Entry Comments:

S94T000381 produced three endotherms one at 103.3°C with a delta H of 61.4 J/g; second at 147.5°C with a delta H of 5.0 J/g and third at 300.6°C with a delta H of 159.7 J/g. S94T000390 produced two

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

endotherms one at 128.1°C w/ a delta H of 597.8 J/g and the second at 255.6°C with a delta H of 6.2 J/g. Page: 1

DSC STD #12N14A

6.722 mg *JMF, 1/20/95 Rate: 10.0 °C/min

File: 00054.001

DSC METTLER

20-Jan-95

Ident: 0.0

222-S Laboratory

exo>

10. mW

Integration
Delta H 185 mJ
27.5 J/g
Peak 158.6 °C
-13.8 mW

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 90 TO 94.

120.

140.

160.

180. °C

WHC-SD-WM-DP-103, REV.0

Std# 12N14A *

Kel Vogel 1/20/95
ADV

S94T000381 N2
14.023 mg
Rate: 10.0 °C/min
File: 00056.001 DSC METTLER 20-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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S94T000381 (DUP) N2
17.103 mg

Rate: 10.0 °C/min

File: 00058.001
Ident: 0.0

DSC METTLER 20-Jan-95
222--S Laboratory

S94T000390 N2
19.197 mg

File: 00059.001 DSC METTLER 20-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

EXO >

10. mW

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

°C

400.

300.

200.

100.

S94T000390 (DUP) N2

15.001 mg

Rate: 10.0 °C/min

File: 00060.001 DSC METTLER 20-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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LABCORE Data Entry Template for Worklist# 353

Analyst: KL V Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run under N2. JMF

WHC-SD-WM-DP-103, REV. 0

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	12N14A		DSC-01	SOLID	28.45	28.9	N/A	Joule
2 SAMPLE	S94T000391	0	DSC-01	SOLID	N/A	0		Joule
3 DUP	S94T000391	0	DSC-01	SOLID	0	0	N/A	Joule

Final page for worklist # 353

NR 4/20/95

Analyst Signature

1-5-95

Date

1-13-95

1-17-95

Verified by Blandina Valenzuela

Data Entry Comments:

S94T000391 ^{Qmf 1/15/95} produced three endotherms
 one at 99.9°C with a delta H of 299.8 J/g; second one at 209.5°C
 with a delta H of 14.6 J/g; and the third one at 299.9°C with a delta H
 of 144.2 J/g.

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

Page: 1

1/5/95

Blandina Valenzuela

DSC STD
6.671 mg

Rate: 10.0 °C/min

File: 00005.001 DSC METTLER 05-Jan-95
Ident: 0.0 222-S Laboratory

exo

5 mW

Integration
Delta H 193 mJ
Peak 28.9 J/g
160.5 °C
-9.3 mW

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 96 TO 99.

120.

140.

160.

180. °C

Std # 12N14A

g ml⁻¹ 1/5/95

1.5.95

S94T000391 N2
12.548 mg

File: 00006.001 DSC METTLER 05-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

exo >

10. mW

Integration
Delta H 184 mJ
14.6 J/g
Peak 209.5°C
-1.1 mW

Integration
Delta H 3761 mJ
299.8 J/g
Peak 99.9°C
-16.7 mW

Integration
Delta H 1809 mJ
144.2 J/g
Peak 299.9°C
-19.5 mW

100. 200. 300. 400. °C

S94T000391 N2

12.548 mg

Baseline subtracted
gm/15/95

Rate: 10.0 °C/min

File: 00006.001

Ident: 0.0

DSC METTLER

05-Jan-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

exo

Integration

Delta H 151 mJ

12.0 J/g

Peak

211.4°C

-1.0 mW

Integration

Delta H 1873 mJ

149.3 J/g

Peak

299.9°C

-19.7 mW

Integration

Delta H 2006 mJ

159.9 J/g

Peak

379.8°C

-6.7 mW

Integration

Delta H 3256 mJ

259.5 J/g

Peak

99.9°C

-2002 mW

10. mW

100

-2002 mW

300

400

°C

S94T000391 (DUP) N2
12.470 mg

Rate: 10.0 °C/min

File: 00008.001 DSC METTLER 05-Jan-95
Ident: 0.0 222-S Laboratory

exo >

WHC-SD-WM-DP-103, REV. 0

Integration
Delta H 125 mJ
10.0 J/g
Peak 206.0°C
-0.7 mW

Integration
Delta H 1890 mJ
151.6 J/g
Peak 301.8°C
-20.2 mW

Integration
Delta H 3537 mJ
283.7 J/g
Peak 101.8°C
-17.2 mW

10. mW

°C

400.

300.

200.

100.

LABCORE Data Entry Template for Worklist# 368

Analyst: KLV Instrument: DSC01 Method: LA-514-113 B-1

Worklist Comment: Please run BY-106 DSC under N2. bdv

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N14A			DSC-01	LIQUID	28.45	29.1	N/A	Joule/g
2	SAMPLE	S94T000371	0		DSC-01	LIQUID	N/A	44.5		Joule/g
3	DUP	S94T000371	0		DSC-01	LIQUID	44.5	44.0	N/A	Joule/g
4	SAMPLE	S95T000004	0		DSC-01	LIQUID	N/A	31.0		Joule/g
5	DUP	S95T000004	0		DSC-01	LIQUID	31.0	30.9	N/A	Joule/g

2/8 4/28/95

Final page for worklist # 368

Analyst Signature

1-27-95
Date

1-31-95

2/1/95

Verified by Blandina Valenzuela

Data Entry Comments:

S94T000371 produced one endotherm at 122.5°C with a
delta H of 1185.0 J/g. S95T000004 produced one endotherm at
120.0°C with a delta H of 1263.5 J/g.

1-27-95
BDV

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

Page: 1

DSC STD 12N14A
6.722 mg *gmf 12/1/95*

File: 00103.001 DSC METTLER 26-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

exo >

5. mW

Integration
Delta H 195 mJ
29.1 J/g
Peak 158.6 °C
-13.8 mW

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 111 TO 105.

120. 140. 160. 180. °C

Handwritten signature
1-27-95

S95T000004 N2

12.961 mg

Rate: 10.0 °C/min

File: 00109.001

DSC METTLER

26-Jan-95

Ident: 0.0

222-S Laboratory

exo

Integration

Delta H 401 mJ

31.0 J/g

Peak 253.5°C

1.6 mW

Integration

Delta H 16327 mJ

1259.7 J/g

Peak 120.0°C

-65.1 mW

WHC-SD-WM-DP-103, REV. 0

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50. mW

100.

200.

300.

400.

°C

S94T000371 N2
13.784 mg

File: 00105.001 DSC METTLER 26-Jan-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

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WHC-SD-WM-DP-103, REV. 0

S94T000371 (DUP) N2
13.494 mg
Rate: 10.0 °C/min
File: 00107.001 DSC METTLER 26-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

S94T0000004 (DUP) N2
12.856 mg
File: 00111.001 DSC METTLER 26-Jan-95
Rate: 10.0 °C/min
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

LABCORE Data Entry Template for Worklist# 652

Analyst: pus Instrument: DSC01 Book # 12N14-F

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

WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Please run BY-106 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	LIQUID	28.45	28.8	N/A	Joules/g
95000007	BY-106	2 SAMPLE	S95T000229 .0		DSC-01	LIQUID	N/A	19.9		Joules/g
95000007	BY-106	3 DUP	S95T000229 0		DSC-01	LIQUID	19.9	20.1	N/A	Joules/g

Final page for worklist # 652

[Signature] 3-16-95
Analyst Signature Date

[Signature] 3-17-95
Analyst Signature Date

Verified by Blandina Valenzuela 3/22/95

Data Entry Comments: S95T000229 produced an endotherm at 131.6°C with a delta H
of 1091.3 J/g

DSC STD 12N14-A

6.438 mg

Rate: 10.0 °C/min

File: 00001.001

Ident: 0.0

DSC METTLER

16-Mar-95

222-S Laboratory

exo

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 107 TO 109.

WHC-SD-WM-DP-103, REV. 0

Integration
Delta H 185 mJ
28.8 J/g
Peak 158.3°C
-13.1 mW

[Signature]
3-16-95 120.

S95T000229 N2
24.982 mg

Rate: 10.0 °C/min

File: 00007.001 DSC METTLER 16-Mar-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

S95T000229 (DUP) N2

17.974 mg

Rate: 10.0 °C/min

File: 00009.001

Ident: 0.0

DSC METTLER

16-Mar-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 484

Analyst: DJS Instrument: DSC01 Book # 12014-17

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Please run BY-106 DSC under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>28.8</u>	<u>N/A</u>	Joules/g
95000007	BY-106	2 SAMPLE	S95T000084	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000007	BY-106	3 DUP	S95T000084	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g

Final page for worklist # 484

Daniel W. Smith 3-16-95
Analyst Signature Date

[Signature] 3-17-95
Analyst Signature Date

Verified by Blandina Valenzuela 3/22/95

Data Entry Comments:

S95T000084 produced an ~~exotherm~~ endotherm at 147.2°C
with a delta H of 633.1 J/g. _{3/22/95 BDV}

DSC STD 12N14-A

6.438 mg

Rate: 10.0 °C/min

File: 00001.001 DSC METTLER 16-Mar-95

Ident: 0.0 222-S Laboratory

exo

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 114 TO 113.

BEST AVAILABLE COPY

[Signature]
3-16-95

WHC-SD-WM-DP-103, REV. 0

S95T000084 N2

32.314 mg

File: 00003.001

Ident: 0.0

DSC METTLER

16-Mar-95

222-S Laboratory

Rate: 10.0 °C/min

exo >

WHC-SD-WM-DP-103, REV. 0

Integration
Delta H20457 mJ
633.1 J/g
Peak
147.2 °C
-37.0 mW

S95T000084 (DUP) N2

38.550 mg

Rate: 10.0 °C/min

File: 00005.001 DSC METTLER 16-Mar-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

°C

400.

300.

200.

100.

LABCORE Data Entry Template for Worklist# 542

Analyst: WJS Instrument: DSC01 Method: LA-514-113 B - 1

Worklist Comment: Please under BY-106 under N2. bdv **WHC-SD-WM-DP-103, REV. 0**

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	<u>12M4A</u>			DSC-01	LIQUID	<u>28.45</u>	<u>27.0</u>	<u>N/A</u>	Joule/g
2	SAMPLE	S95T000109	0		DSC-01	LIQUID	<u>N/A</u>	<u>54.1</u>		Joule/g
3	DUP	S95T000109	0		DSC-01	LIQUID	<u>54.1</u>	<u>59.4</u>	<u>N/A</u>	Joule/g

2/3 4/28/95

Final page for worklist # 542

[Signature]
Analyst Signature

2-25-95
Date

Data entered and ³⁻²⁻⁹⁵ verify
verified by Blandina Valenzuela

3-2-95

Data Entry Comments: S95T000109 produced one endotherm with a delta H of
1104.9 J/g.

115

DSC STD 12N14-A

6.688 mg

Rate: 10.0 °C/min

File: 00018.001

Ident: 0.0

DSC METTLER 24-Feb-95

222-S Laboratory

WHC-SD-WM-DP-103, REV.0

David G. Smith 2-25-95

S95T000109 N2

11.207 mg

Rate: 10.0 °C/min

File: 00020.001

Ident: 0.0

DSC METTLER

24-Feb-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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S95T000109 (DUP) N2

12.112 mg

Rate: 10.0 °C/min

File: 00021.001

DSC METTLER 24-Feb-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 544

Analyst: SMF Instrument: DSC01 Book # 12N14-A

Method: LA-514-113 Rev/Mod B-1 WHC-SD-WM-DP-103, REV.0

Worklist Comment: Please run BY-106 under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			DSC-01	SOLID	<u>28.45</u>	<u>28.5</u>	<u>N/A</u>	Joules/g
95000007	BY-106	2 SAMPLE	S95T000098	0	DSC-01	SOLID	<u>N/A</u>	<u>Ø</u>		Joules/g
95000007	BY-106	3 DUP	S95T000098	0	DSC-01	SOLID	<u>Ø</u>	<u>Ø</u>	<u>N/A</u>	Joules/g
95000007	BY-106	4 SAMPLE	S95T000099	0	DSC-01	SOLID	<u>N/A</u>	<u>417.9</u>		Joules/g
95000007	BY-106	5 DUP	S95T000099	0	DSC-01	SOLID	<u>417.9</u>	<u>855.4</u>	<u>N/A</u>	Joules/g
95000007	BY-106	6 DUP2	S95T000099	0	DSC-01	SOLID	<u>417.9</u>	<u>421.4</u>	<u>N/A</u>	Joules/g

Final page for worklist # 544

See attached for signatures 3/22/95
Analyst Signature Date

Data entered and verified by
Blandina Valenzuela 3/22/95
Analyst Signature Date

Data Entry Comments:

Sample S95T000098 - light brown grainy, like brown sugar with dark brown grains. S95T000098 produced three endotherms; one at ^{101.5°C} ~~103.0°C~~ with a delta H of ^{987.7} ~~882.2~~ J/g, second at ^{213.1} ~~212.9~~ °C with a delta H of ^{31.4} ~~39.5~~ J/g, and third at ^{265.3} ~~275.2~~ °C with a delta H of ^{24.5} ~~45.9~~ J/g. ^{3/22/95 bdv} ^{3/22/95 bdv}

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.

S95T000099 - dark brown clay like material. S95T000099 produced an endotherm at 116.6°C with a delta H of 853.5 J/g. **118**

LABCORE Data Entry Template for Worklist# 544

Analyst: SMF Instrument: DSC01 _____ Method: LA-514-113/B 1
 Worklist Comment: Please run BY-106 under N2. bdv WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	12N11-A			DSC-01	SOLID	28.45	28.5	3/22/95 80V N/A	Joule/g
2	SAMPLE	S95T000098	0		DSC-01	SOLID	N/A	Ø	3/22/95 80V	Joule/g
3	DUP	S95T000098	0		DSC-01	SOLID	Ø	Ø	3/22/95 80V N/A	Joule/g
4	SAMPLE	S95T000099	0		DSC-01	SOLID	N/A			Joule/g
5	DUP	S95T000099	0		DSC-01	SOLID			N/A	Joule/g

Final page for worklist # 544

Susie M. Dullon
 Analyst Signature

3-15-95
 Date

Data Entry Comments:

Sample S95T000098 - light brown grainy, like brown sugar
 Sample S95T000099 - dark brown clay-like material

with dark grains

DSC STD 12N14-A

6.438 mg

Rate: 10.0 °C/min

File: 00222.001

DSC METTLER

15-Mar-95

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 120 TO 125.

EXOTHERM

WHC-SD-WM-DP-103, REV. 0

Integration

Delta H 184 mJ

28.5 J/g

Peak 158.4 °C

-12.3 mW

120

10. mW

120.

140.

160.

180.

3/16/95 BSV

Lucie M. Fulton

S95T000098 N2

10.130 mg

Rate: 10.0 °C/min

File: 00224.001

DSC METTLER

15-Mar-95

Ident: 0.0

222-S Laboratory

EXO >

20. mW

121

Integration
Delta H 323 mJ
31.9 J/g
Peak 213.1°C
-4.0 mW

Integration
Delta H 248 mJ
24.5 J/g
Peak 265.3°C
-1.4 mW

Integration
Delta H 9701 mJ
957.7 J/g
Peak 101.5°C
-40.2 mW

WHC-SD-WM-DP-103, REV. 0

100.

200.

300.

400.

°C

S95T000098 (DUP) N2

12.892 mg

Rate: 10.0 °C/min

File: 00226.001

DSC METTLER

15-Mar-95

Ident: 0.0

222-S Laboratory

EXO

122

20. mW

Integration

Delta H 509 mJ

39.5 J/g

Peak 212.9°C

-6.0 mW

Integration

Delta H 591 mJ

45.9 J/g

Peak 275.2°C

-3.4 mW

Integration

Delta H 11373 mJ

882.2 J/g

Peak 103.0°C

-52.1 mW

WHC-SD-WM-DP-103, REV.0

100.

200.

300.

400.

°C

S95T000099 N2
10.081 mg

Rate: 10.0 °C/min

File: 00229.001 DSC METTLER 15-Mar-95
Ident: 0.0 222-S Laboratory

exo >

WHC-SD-WM-DP-103, REV. 0

S95T000099 (DUP) N2

10.572 mg

Rate: 10.0 °C/min

File: 00231.001

DSC METTLER

15-Mar-95

Ident: 0.0

222-S Laboratory

EXO

124

20. mW

Integration

Delta H 9043 mJ

855.4 J/g

Peak 318.0°C

10.3 mW

Integration

Delta H 12002 mJ

1135.3 J/g

Peak 129.9°C

-25.2 mW

100.

200.

300.

400.

°C

WHC-SD-WM-DP-103, REV.0

S95T0000099 (DUP2) N2

20.014 mg

Rate: 10.0 °C/min

File: 00233.001

DSC METTLER

15-Mar-95

Ident: 0.0 222-S Laboratory

EXO ↑

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 960

Analyst: BDV Instrument: DSC01 Book # _____

Method: LA-514-113 Rev/Mod _____ WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Calculated BY-106 dry DSC. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	-----TEST-----	MATRIX	ACTUAL	FOUND	DL	UNIT
94000019	BY-106	1 SAMPLE	S94T000308	0	DSC-02	SOLID	N/A	447		Joules/g Dry
94000019	BY-106	2 DUP	S94T000308	0	DSC-02	SOLID	447	219	N/A	Joules/g Dry
94000019	BY-106	3 DUP2	S94T000308	0	DSC-02	SOLID	447	331	N/A	Joules/g Dry
94000019	BY-106	4 SAMPLE	S94T000309	0	DSC-02	SOLID	N/A	191		Joules/g Dry
94000019	BY-106	5 DUP	S94T000309	0	DSC-02	SOLID	191	167	N/A	Joules/g Dry
94000019	BY-106	6 SAMPLE	S94T000310	0	DSC-02	SOLID	N/A	28		Joules/g Dry
94000019	BY-106	7 DUP	S94T000310	0	DSC-02	SOLID	28	19	N/A	Joules/g Dry
94000019	BY-106	8 SAMPLE	S94T000311	0	DSC-02	SOLID	N/A	397		Joules/g Dry
94000019	BY-106	9 DUP	S94T000311	0	DSC-02	SOLID	397	137	N/A	Joules/g Dry
94000019	BY-106	10 DUP2	S94T000311	0	DSC-02	SOLID	397	Ø	N/A	Joules/g Dry
94000019	BY-106	11 SAMPLE	S94T000345	0	DSC-02	SOLID	N/A	96		Joules/g Dry
94000019	BY-106	12 DUP	S94T000345	0	DSC-02	SOLID	96	92	N/A	Joules/g Dry

Data entered + verified by **Final page for worklist # 960**

Blandina Valenzuela 4/4/95
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# 585

Analyst: BDV Instrument: DSC01 Book # N/A

Method: LA-514-113 Rev/Mod N/A WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Calculated BY-106 dry DSC. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	DSC ACTUAL	TGA FOUND	DRY DSC DL	UNIT
95000007	BY-106	1 SAMPLE	S95T000098	0	DSC-02	SOLID ^{3/29/95} BDV	<u>Ø</u> N/A	<u>28.16</u>	<u>Ø</u> N/A	Joules/g Dry
95000007	BY-106	2 DUP	S95T000098	0	DSC-02	SOLID	<u>Ø</u>	<u>28.16</u>	<u>Ø</u> N/A	^{3/29/95} Joules/g Dry
95000007	BY-106	3 SAMPLE	S95T000099	0	DSC-02	SOLID ^{3/29/95} BDV	<u>417.9</u> N/A	<u>37.32</u>	<u>667</u>	Joules/g Dry
95000007	BY-106	4 DUP	S95T000099	0	DSC-02	SOLID	<u>855.4</u>	<u>37.32</u>	<u>1365</u> N/A	^{3/29/95} Joules/g Dry
95000007	BY-106	5 DUP2	S95T000099	0	DSC-02	SOLID	<u>421.4</u>	<u>37.32</u>	<u>672</u> N/A	^{3/29/95} Joules/g Dry

Final page for worklist # 585

Blandino Valenzuela 3/29/95
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# 961

Analyst: BDV Instrument: DSC01 Book # _____

Method: LA-514-113 Rev/Mod _____

WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Calculated BY-106 dry DSC. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
94000019	BY-106	1 SAMPLE	S94T000355	0	DSC-02	LIQUID	N/A	78		Joules/g Dry
94000019	BY-106	2 DUP	S94T000355	0	DSC-02	LIQUID	78	193	N/A	Joules/g Dry
94000019	BY-106	3 DUP2	S94T000355	0	DSC-02	LIQUID	78	153	N/A	Joules/g Dry
94000019	BY-106	4 SAMPLE	S94T000371	0	DSC-02	LIQUID	N/A	123		Joules/g Dry
94000019	BY-106	5 DUP	S94T000371	0	DSC-02	LIQUID	123	122	N/A	Joules/g Dry
94000019	BY-106	6 SAMPLE	S95T000004	0	DSC-02	LIQUID	N/A	98		Joules/g Dry
94000019	BY-106	7 DUP	S95T000004	0	DSC-02	LIQUID	98	97	N/A	Joules/g Dry

Data entered and verified by **Final page for worklist # 961**

Blandina Valenzuela 4/4/95
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# 235

Analyst: SMF Instrument: TGA01 _____ Method: LA-560-112 A2

Worklist Comment: Please run under N2, JMF.BY-106

WHC-SD-WM-DP-103, REV. 0

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	42N8-A		TGA-01	SOLID	59.19	-58.46	N/A	%
2 SAMPLE	S94T000305	0	TGA-01	SOLID	N/A	-47.17		%
3 DUP	S94T000305	0	TGA-01	SOLID	47.17	-46.24	N/A	%
4 SAMPLE	S94T000308	0	TGA-01	SOLID	N/A	-46.65		%
5 DUP	S94T000308	0	TGA-01	SOLID	46.65	-47.26	N/A	%

Final page for worklist # 235

Susie M. Fulton
Analyst Signature

12-24-94
Date

[Signature]

1-11-95

Verified by Blandina Valenzuela

1-12-95

Data Entry Comments:

TGA STD
17.130 mg

Rate: 10.0 °C/min

File: 00056.001 TG METTLER 24-Dec-94

Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 130 TO 134.

Step Analysis
Height-10.02 mg
-58.46 %
Resid. 7.11 mg
41.54 %
Dpeak 83.0 °C

WHC-SD-WM-DP-103, REV. 0

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Std Sample # 42N8A gmf 1/24/94

Lucie M. Fulton gmf 1/24/94

S94T000305 N2

17.378 mg

Rate: 10.0 °C/min

File: 00058.001

TG

METTLER

24-Dec-94

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

Step Analysis
Height -8.20 mg
-47.17 %
Resid. 9.18 mg
52.83 %
Dpeak 65.0 °C

mg

131

S94T000305 (DUP) N2
29.818 mg

Rate: 10.0 °C/min

File: 00060.001

TG METTLER

24-Dec-94

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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Step Analysis
Height-13.79 mg
-46.24 %
Resid. 16.03 mg
53.76 %
Dpeak 203.0 °C

806001465 2N 594T000308

16.336 mg

Rate: 10.0 °C/min

File: 00062.001

GT

METTLER

24-DEC-94

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

Step Analysis

Height -7.62 mg

-46.65 %

Resic. 8.72 mg

53.35%

Dpeak 75.0°C

S94T000308 (DUP) N2

29.337 mg

Rate: 10.0 °C/min

File: 00063.001 TG METTLER 24-Dec-94

Ident: 0.0 222-S Laboratory

Step Analysis
Height-13.86 mg
-47.26 %
Resid. 15.47 mg
52.74 %
Dpeak 87.0°C

WHC-SD-WM-DP-103, REV. 0

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LABCORE Data Entry Template for Worklist# 236

Analyst: DWS Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: BY-106, run under N2. JMF

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N8A			TGA-01	SOLID	59.19	58.80	N/A	%
2	SAMPLE	S94T000309	0		TGA-01	SOLID	N/A	38.31		%
3	DUP	S94T000309	0		TGA-01	SOLID	38.31	32.20	N/A	%
4	STD				TGA-01	SOLID	59.19	58.64	N/A	%
5	SAMPLE	S94T000310	0		TGA-01	SOLID	N/A	21.07		%
6	DUP	S94T000310	0		TGA-01	SOLID	21.07	25.62	N/A	%

Final page for worklist # 236

See attached page
Analyst Signature

[Signature]

Verified by Blandina Valenzuela

1/5/95
Date

1/6/95

1/16/95

Data Entry Comments:

LABCORE Data Entry Template for Worklist# 236

Analyst: DWS Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: BY-106, run under N2. JMF

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD				TGA-01	SOLID			N/A	%
2	SAMPLE	S94T000309	0		TGA-01	SOLID	N/A			%
3	DUP	S94T000309	0		TGA-01	SOLID			N/A	%
4	SAMPLE	S94T000310	0		TGA-01	SOLID	N/A			%
5	DUP	S94T000310	0		TGA-01	SOLID			N/A	%

Final page for worklist # 236

Analyst Signature

12-19-24
Date

Data Entry Comments:

TERLIQU STD # 42NB-A

TGA STD
15.286 mg

File: 00012.001 TG METTLER 19-Dec-94
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height -8.99 mg
-58.80 %
Resid. 6.30 mg
41.20 %
Dpeak 82.3 °C

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 137 TO 142.

David W. Smith
19 Dec 94

WHC-SD-WM-DP-103, REV. 0

S94T000309 N2

6.860 mg

Rate: 10.0 °C/min

File: 00014.001

TG

METTLER

19-Dec-94

Ident: 0.0

222-S Laboratory

Step Analysis

Height -2.63 mg

-38.31 %

ResiC. 4.23 mg

61.69 %

Dpeak 57.0 °C

Step Analysis

Height -0.50 mg

-7.27 %

ResiC. 3.73 mg

54.41 %

WHC-SD-WM-DP-103, REV. 0

138

S94T000309 (DUP) N2

11.164 mg

Rate: 10.0 °C/min

File: 00016.001 TG METTLER 19-Dec-94

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

TGA STD
12.381 mg

File: 00037.001 TG METTLER 22-Dec-94
Rate: 10.0 °C/min Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

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Step Analysis
Height -7.26 mg
-58.64 %
ResidC. 5.12 mg
41.36 %
Dpeak 78.3 °C

W. J. S. 12-22-94

BDV
4/5/94
S94 T000310 15195g mF
S94 T00040 N2

File: 00040.001 TG METTLER 22-Dec-94
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

25.338 mg

Step Analysis
Height -5.34 mg
-21.07 %
ResidC. 20.00 mg
78.93 %
Dpeak 109.0 °C

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

BDV 1/5/95
BDV 1/5/95

S94T000310

S94T00010 (DUP) N2

25.357 mg

File: 00042.001 TG METTLER 22-Dec-94
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height -6.50 mg
-25.62 %
Resid. 18.86 mg
74.38 %
Dpeak 101.0 °C

WHC-SD-WM-DP-103, REV. 0

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LABCORE Data Entry Template for Worklist# 237

Analyst: SLHB Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: BY-106, run under N2. JMF

WHC-SD-WM-DP-103, REV.0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD				TGA-01	SOLID	<u>59.19</u>	<u>58.66</u>	<u>N/A</u>	%
2	SAMPLE	S94T000311	0		TGA-01	SOLID	<u>N/A</u>	<u>9.70</u>		%
3	DUP	S94T000311	0		TGA-01	SOLID	<u>9.70</u>	<u>9.78</u>	<u>N/A</u>	%

Final page for worklist # 237

Sandra Lind Boatright
Analyst Signature

12-12-94
Date

CA Clark (Data Entered)

12/19/94

Verified 12/22/94. J. M. Lutz

Data Entry Comments:

STD 42 N 8 A

Worklist #237 JMF 12/12/94

TGA STD
13.903 mg

Rate: 10.0 °C/min

File: 00104.001 TG METTLER 12-Dec-94

Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 144 TO 146.

Step Analysis

Height -8.16 mg

-58.66 %

ResidC. 5.75 mg

41.34 %

Dpeak 75.0 °C

WMC-SD-WM-DP-103, REV.0

144

SLHood Boethright 12-12-94

Worklist #237 gmf 12/2/94

S94T000311 N2

15.701 mg

File: 00105.001 TG METTLER 12-Dec-94

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

Step Analysis

Height -1.52 mg

-9.70 %

Resid. 14.18 mg

90.30 %

Dpeak 45.0 °C

Worklist #237 JMF 12/12/94

S94T000311 (DUP) N2

File: 00106.001

TG

METTLER

12-Dec-94

16.855 mg

Rate: 10.0 °C/min

Ident: 0.0

222-S Laboratory

Step Analysis

Height -1.65 mg

-9.78 %

ResiC. 15.21 mg

90.22 %

Dpeak 45.0 °C

WHC-SD-WM-DP-103, REV.0

By 106

LABCORE Data Entry Template for Worklist# 240

Analyst: SMF Instrument: TGA01 Method: LA-560-112/A2
 Worklist Comment: Please run TGA under N2. JMF WHC-SD-WM-DP-103, REV. 0

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	42N8-A		TGA-01	SOLID	59.19	58.59	N/A	%
2 SAMPLE	S94T000326	0	TGA-01	SOLID	N/A	14.37		%
3 DUP	S94T000326	0	TGA-01	SOLID	14.37	14.24	N/A	%
4 SAMPLE	S94T000346	0	TGA-01	SOLID	N/A	18.38		%
5 DUP	S94T000346	0	TGA-01	SOLID	18.38	14.94	N/A	%

Final page for worklist # 240

Susie M. Fulton
 Analyst Signature
 R. Jones 1-4-95

12-24-12-25-94
 Date SMF

Verified 1/9/94 B.D. Valenzuela

Data Entry Comments:

TGA STD
16.364 mg

Rate: 10.0 °C/min

File: 00065.001 TG METTLER 25-Dec-94
Ident: 0.0 222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 148 TO 152.

Step Analysis
Height -9.59 mg
-58.59 %
ResiC. 6.78 mg
41.41 %
Dpeak 79.0 °C

WHC-SD-WM-DP-103, REV. 0
BEST AVAILABLE COPY

Susie M. Fulton

12/25/94
gmc

S94T000326 N2

20.846 mg

Rate: 10.0 °C/min

File: 00067.001

TG METTLER 25-Dec-94

Ident: 0.0 222-S Laboratory

Step Analysis

Height -3.00 mg
-14.37 %

ResidC. 17.85 mg

85.63 %

Dpeak 163.0 °C

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

S94T000326 (DUP) N2

21.253 mg

Rate: 10.0 °C/min

File: 00069.001 TG METTLER 25-Dec-94

Ident: 0.0

222-S Laboratory

Step Analysis

Height -3.03 mg

-14.24 %

ResiC. 18.23 mg

85.76 %

Dpeak 59.0 °C

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WMC-SD-WM-DP-103, REV.0

150

1. mg

100.

200.

300.

400.

500.

S94T000346 N2

20.995 mg

Rate: 10.0 °C/min

File: 00071.001

TG

METTLER

25-Dec-94

Ident: 0.0

222-S

Laboratory

2. mg

Step Analysis
Height -3.86 mg
-18.38 %
Resid. 17.14 mg
81.62 %
Dpeak 133.0 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV. 0

°C

400.

300.

200.

100.

S94T000346 (DUP) N2
22.734 mg

File: 00073.001 TG METTLER 25-Dec-94
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -3.40 mg
-14.94 %
Resid. 19.34 mg
85.06 %
Dpeak 61.0 °C

LABCORE Data Entry Template for Worklist# 251

Analyst: DWS Instrument: TGA01 Method: LA-560-112

A-2 1/26/95
BDV

Worklist Comment: Please run BY-106 TGA under N2. BDV

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N8A			TGA-01	SOLID	59.19	58.36	N/A	%
2	SAMPLE	S94T000342	0		TGA-01	SOLID	N/A	18.01		%
3	DUP	S94T000342	0		TGA-01	SOLID	18.01	15.64	N/A	%
4	SAMPLE	S94T000343	0		TGA-01	SOLID	N/A	8.26		%
5	DUP	S94T000343	0		TGA-01	SOLID	8.26	11.57	N/A	%

Final page for worklist # 251

Daniel W. Smith
Analyst Signature

Verified by Blandina Valenzuela

12-23-91
Date
1/21/95
1/19/95
BDV

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments:

TERMINAL STD # 42N8-A

TGA STD 42N8A

18.072 mg

12/23/94
JMF

Rate: 10.0 °C/min

File: 00045.001

TG

METTLER

23-Dec-94

Ident: 0.0

222-S Laboratory

Step Analysis

Height-10.55 mg

-58.36 %

Resid. 7.52 mg

41.64 %

Dpeak 85.7 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 154 TO 158.

50.

100.

150.

°C

David W. Smith 12-23-94

S94T000342 N2

21.034 mg

Rate: 10.0 °C/min

File: 00047.001

TG

METTLER

23-Dec-94

Ident: 0.0

222-S Laboratory

Step Analysis

Height -2.34 mg

-11.10 %

ResiC. 17.25 mg

81.99 %

Dpeak 181.0°C

Step Analysis

Height -3.79 mg

-18.01 %

ResiC. 17.25 mg

81.99 %

Dpeak 181.0°C

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV.0

S94T000342 (DUP) N2
26.663 mg
File: 00049.001 TG METTLER 23-Dec-94
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

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S94T000343 N2

26.459 mg

Rate: 10.0 °C/min

File: 00051.001

TG

METTLER

23-Dec-94

Ident: 0.0

222-S Laboratory

Step Analysis

Height -2.18 mg

-8.26 %

ResiC. 24.27 mg

91.74 %

Dpeak 45.0 °C

Step Analysis

Height -1.09 mg

-4.14 %

ResiC. 24.27 mg

91.74 %

Dpeak 209.0 °C

BEST AVAILABLE COPY

WHC-SD-WM-DP-103, REV.0

157

1. mg

100.

200.

300.

400.

°C

File: 00053.001 TG METTLER 23-Dec-94
Ident: 0.0 222-S Laboratory

S94T000343 (DUP) N2

21.634 mg

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

BEST AVAILABLE COPY

Step Analysis
Height -2.50 mg
-11.57 %
ResiC. 19.13 mg
88.43 %
Dpeak 45.0 °C

Step Analysis
Height -0.67 mg
-3.09 %
ResiC. 19.13 mg
88.43 %

1. mg

LABCORE Data Entry Template for Worklist# 252

Analyst: KLV Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: Please run BY-106 under N2. Upper temp. limit 450. BDV

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N8A			TGA-01	SOLID	59.19	58.85	N/A	%
2	SAMPLE	S94T000344	0		TGA-01	SOLID	N/A	17.65		%
3	DUP	S94T000344	0		TGA-01	SOLID	17.65	20.47	N/A	%
4	SAMPLE	S94T000345	0		TGA-01	SOLID	N/A	43.17		%
5	DUP	S94T000345	0		TGA-01	SOLID	43.17	43.45	N/A	%

Final page for worklist # 252

Analyst Signature

Date

Verified by Blandina Valenzuela

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments:

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

Page: 1

TGA STD H2N8A

16.482 mg

GRF 1/25/95

Rate: 20.0 °C/min

File: 00086.001

TG

METTLER

25-Jan-95

Ident: 0.0

222-S Laboratory

160

5. mg

Step Analysis

Height -9.70 mg

-58.85 %

ResiC. 6.78 mg

41.15 %

Dpeak 98.0 °C

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 1160 TO 1164.

50.

100.

150.

200.

°C

Handwritten signature 1-25-95

S94T000344 N2

15.074 mg

File: 00087.001 TG METTLER 25-Jan-95

Ident: 0.0 222-S Laboratory

Rate: 20.0 °C/min

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -2.66 mg
-17.65 %
ResiC. 12.41 mg
82.35 %
Dpeak 58.3 °C

100. 200. 300. 400. °C

File: 00089.001 TG METTLER 25-Jan-95

Ident: 0.0

Rate: 20.0 °C/min

TG METTLER

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis

Height -4.06 mg

-20.47 %

Resic. 15.75 mg

79.53 %

Peak 73.3°C

S94T000345 N2

13.897 mg

Rate: 10.0 °C/min

File: 00090.001

TG

METTLER

25-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.00 mg

-43.17 %

ResiC. 7.90 mg

56.83 %

Dpeak 71.7°C

WHC-SD-WM-DP-103, REV.0

163

S94T000345 (DUP) N2

19.907 mg

Rate: 10.0 °C/min

File: 00091.001

TG METTLER

25-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -8.65 mg
-43.45 %
ResidC. 11.26 mg
56.55 %
Dpeak 80.0 °C

LABCORE Data Entry Template for Worklist# 291

2/1/95 BDV

Analyst: DWS Instrument: TGA01 Method: LA-560-112 ~~A-2~~

Worklist Comment: Please run BY-106 TGA under N2. bdv WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	Al	Test	Matrix	Actual	Found	DL	Unit
1	STD	42NB-R			TGA-01	LIQUID	59.19	58.59	N/A	%
2	SAMPLE	S94T000355	0		TGA-01	LIQUID	N/A	54.57		%
3	DUP	S94T000355	0		TGA-01	LIQUID	54.57	55.22	N/A	%

Final page for worklist # 291

DWS
Analyst Signature

1-30-95
Date

Li Jones
Verified by Blandina Valenzuela

1-31-95
2/1/95

Data Entry Comments:

TGA STD 42N8A

16.228 mg *gmf 1/30/95*

Rate: 10.0 °C/min

File: 00122.001

TG

METTLER

30-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.51 mg

-58.59 %

ResidC. 6.72 mg

41.41 %

Dpeak 87.7 °C

WHC-SD-WM-DP-103, REV. 0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES *1106* TO *1108*.

50.

100.

150.

°C

David W. Smith
1-30-95

S94T000355 N2

11.733 mg

Rate: 10.0 °C/min

File: 00123.001

TG

METTLER

30-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -6.48 mg

-55.22 %

Resid. 5.25 mg

44.78 %

Step Analysis

Height -0.84 mg

-7.17 %

Resid. 4.41 mg

37.61 %

WHC-SD-WM-DP-103, REV. 0

S94T000355 (DUP) N2
12.850 mg

Rate: 10.0 °C/min

File: 00124.001 TG METTLER 30-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -7.01 mg
-54.57 %
Resid. 5.84 mg
45.43 %
Dpeak 75.0 °C

Step Analysis
Height -0.76 mg
-5.88 %
Resid. 5.08 mg
39.55 %

LABCORE Data Entry Template for Worklist# 350

Analyst: SLV Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: Please run BY-106 TGA under N2. bdv WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	N2N3A			TGA-01	SOLID	59.19	58.72 ⁸ _{1-24-95 BDV}	N/A	%
2	SAMPLE	S94T000381	0		TGA-01	SOLID	N/A	3.51		%
3	DUP	S94T000381	0		TGA-01	SOLID	3.51	4.05	N/A	%
4	SAMPLE	S94T000390	0		TGA-01	SOLID	N/A	26.83		%
5	DUP	S94T000390	0		TGA-01	SOLID	26.83	27.76	N/A	%

Final page for worklist # 350

Analyst Signature

^{KV 1-24-95}
~~1-12-95~~ 1-24-95
 Date

Verified by Blandina Valenzuela

1/26/95

BEST AVAILABLE COPY

Data Entry Comments:

Scan rate for S94T000381 was 20°C/minute this was due to a tech error. The analysis and data will not be affected.

Scan rate for S94T000390 was 20°C/min, for the dup it was 10°C/min

Units shown for QC (SPK) may not reflect the actual units. The results are very similar. Page: 1

169 The data should not be affected

TGA STD

16.199 mg

Rate: 20.0 °C/min

File: 00081.001

TG METTLER

24-Jan-95

Ident: 0.0

222-S Laboratory

[Signature]
1-25-95
1-24-95

S94T000381 N2

15.459 mg

Rate: 10.0 °C/min

File: 00082.001

TG METTLER

24-Jan-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height -0.54 mg
-3.51 %
Resid. 14.92 mg
96.49 %
Dpeak 45.0 °C

WHC-SD-WM-DP-103, REV. 0

S94T000381 (DUP) N2
11.897 mg
Rate: 10.0 °C/min

File: 00083.001
Ident: 0.0

TG METTLER 24-Jan-95
222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -0.48 mg
-4.05 %
ResidC. 11.42 mg
95.95 %

S94T000390 N2

15.095 mg

Rate: 10.0 °C/min

File: 00084.001

TG METTLER

24-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -4.05 mg

-26.83 %

ResiC. 11.05 mg

73.17 %

Dpeak 63.0 °C

WHC-SD-WM-DP-103, REV.0

173

S94T000390 (DUP) N2

11.553 mg

Rate: 10.0 °C/min

File: 00085.001

TG METTLER 24-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis

Height -3.21 mg

-27.76 %

ResidC. 8.35 mg

72.24 %

Dpeak 51.0 °C

LABCORE Data Entry Template for Worklist# 351

Analyst: DWS Instrument: TGA01 Method: LA-560-112 A-2

Worklist Comment: Please run BY-106 TGA under N2. bdv

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	<u>4208A</u>			TGA-01	SOLID	<u>59.19</u>	<u>58.60</u>	<u>N/A</u>	%
2	SAMPLE	S94T000372	0		TGA-01	SOLID	<u>N/A</u>	<u>25.39</u>		%
3	DUP	S94T000372	0		TGA-01	SOLID	<u>25.39</u>	<u>14.24</u>	<u>N/A</u>	%
4	DUP2	S94T000372	0		TGA-01	SOLID	<u>25.39</u>	<u>23.54</u>	<u>N/A</u>	%
5	SAMPLE	S94T000373	0		TGA-01	SOLID	<u>N/A</u>	<u>20.10</u>		%
6	DUP	S94T000373	0		TGA-01	SOLID	<u>20.10</u>	<u>17.41</u>	<u>N/A</u>	%
7	DUP2	S94T000373	0		TGA-01	SOLID	<u>20.10</u>	<u>11.66</u>	<u>N/A</u>	%
8	STD				TGA-01	SOLID	<u>59.19</u>	<u>58.66</u>	<u>N/A</u>	%

Final page for worklist # 351

See attached for signatures
Analyst Signature

2-9-95
Date

Entered and verified by Blandina Valenzuela 2-9-95

Data Entry Comments:

The second standard corresponds with both DUP2's

LABCORE Data Entry Template for Worklist# 351

Analyst: PWS Instrument: TGA01 Method: LA-560-112 ~~DE~~ A-2

2/9/95
BDV

Worklist Comment: Please run BY-106 TGA under N2. bdv

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42WB-A			TGA-01	SOLID	59.19	58.60	N/A	%
2	SAMPLE	S94T000372	0		TGA-01	SOLID	N/A			%
3	DUP	S94T000372	0		TGA-01	SOLID			N/A	%
4	SAMPLE	S94T000373	0		TGA-01	SOLID	N/A			%
5	DUP	S94T000373	0		TGA-01	SOLID			N/A	%

Final page for worklist # 351

Analyst Signature

1-30-95
Date

WHC-SD-WM-DP-103, REV. 0

Data Entry Comments:

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

Page: 1

TGA STD 42N8A

16.228 mg *gm Fil 120/25*

Rate: 10.0 °C/min

File: 00122.001

TG

METTLER

30-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -9.51 mg

-58.60 %

ResidC. 6.72 mg

41.40 %

Dpeak 87.7 °C

WHC-SD-WM-DP-103, REV.0

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 177 TO 184.

50.

100.

150.

°C

D. P. Smith 1-30-95

S94T000372 N2
29.672 mg

Rate: 10.0 °C/min

File: 00125.001 TG METTLER 30-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -7.53 mg
-25.39 %
Resid. 22.14 mg
74.61 %
Dpeak 69.0 °C

S94T000372 (DUP) N2

22.982 mg

Rate: 10.0 °C/min

File: 00126.001

TG

METTLER

30-Jan-95

Ident: 0.0

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis

Height -3.27 mg

-14.24 %

Resid. 19.71 mg

85.76 %

Dpeak 187.0 °C

S94T000373 N2
34.938 mg

Rate: 10.0 °C/min

File: 00127.001 TG METTLER 30-Jan-95
Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -7.02 mg
-20.10 %
Resid. 27.92 mg
79.90 %
Dpeak 83.0 °C

S94T000373 (DUP) N2

29.389 mg

File: 00128.001 TG METTLER 30-Jan-95

Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -5.12 mg
-17.41 %
ResidC. 24.27 mg
82.59 %
Dpeak 145.0 °C

TGA STD 42N8A *2/3/95*
 15.830 mg *gmF*
 Rate: 10.0 °C/min
 File: 00024.001 TG METTLER 03-Feb-95
 Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

David W. Smith 2-1-75

File: 00025.001 TG METTLER 03-Feb-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

S94T000372 N2
17.881 mg

Step Analysis
Height -4.21 mg
-23.54 %
Resid. 13.67 mg
76.46 %
Dpeak 61.0 °C

S941000373 N2
23.713 mg

Rate: 10.0 °C/min

File: 00026.001 TG METTLER 03-Feb-95
Ident: 0.0 222-S Laboratory

Step Analysis
Height -2.76 mg
-11.66 %
Resic. 20.93 mg
88.28 %
Dpeak 47.0 °C

184

6w. 1

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 355

Analyst: KLK Instrument: TGA01 _____ Method: LA-560-112 A-2

Worklist Comment: PLease run under N2. JMF

WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42N8A			TGA-01	SOLID	59.19	59.28	N/A	%
2	SAMPLE	S94T000391	0		TGA-01	SOLID	N/A	12.26		%
3	DUP	S94T000391	0		TGA-01	SOLID	12.26	10.15	N/A	%

Final page for worklist # 355

 Analyst Signature

1-5-95
 Date

1-13-95

1-17-95

Verified by Blandina Valenzuela

Data Entry Comments:

File: 00002.001 TG METTLER 05-Jan-95
 Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

TGA STD
 14.860 mg

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
 COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 186 TO 188.

Step Analysis
 Height -8.81 mg
 -59.28 %
 ResidC. 6.05 mg
 40.72 %
 Dpeak 83.0 °C

Std # 42N8A gmf 1/5/95

1.5.95

S94T000391 N2
14.418 mg

File: 00007.001
Ident: 0.0

Rate: 10.0 °C/min

TG METTLER 05-Jan-95
222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -1.77 mg
-12.26 %
ResidC. 12.65 mg
87.74 %
Dpeak 65.0 °C

S94T000391 (DUP) N2

12.528 mg

Rate: 10.0 °C/min

File: 00009.001 TG METTLER 05-Jan-95

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -1.27 mg
-10.15 %
ResiC. 11.26 mg
89.85 %
Dpeak 61.0 °C

LABCORE Data Entry Template for Worklist# 369

Analyst: KLV Instrument: TGA01 _____ Method: LA-560-112 A-2

Worklist Comment: Please run BY-106 under N2. bdv

WHC-SD-WM-DP-103, REV.0

Seg Type	Sample#	Rep Al	Test	Matrix	Actual	Found	DL	Unit
1 STD	42N8A		TGA-01	LIQUID	¹⁻²⁷⁻⁹⁵ 57.88 59.19	57.88	N/A	%
2 SAMPLE	S94T000371	0	TGA-01	LIQUID	N/A	63.85		%
3 DUP	S94T000371	0	TGA-01	LIQUID	¹⁻²⁷⁻⁹⁵ 64.07 63.85	64.07	N/A	%
4 SAMPLE	S95T000004	0	TGA-01	LIQUID	N/A	68.57		%
5 DUP	S95T000004	0	TGA-01	LIQUID	^{80W} 68.57 67.93	67.93	N/A	%

Final page for worklist # 369

Analyst Signature

1-27-95
Date

1-31-95

2/1/95

Verified by Blandina Valenzuela

Data Entry Comments:

TGA STD 42N8A

15.199 mg *gmF 1/27/95*

Rate: 10.0 °C/min

File: 00104.001

TG

METTLER

27-Jan-95

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 190 TO 194.

Step Analysis

Height -8.80 mg

-57.88 %

ResidC. 6.40 mg

42.12 %

Dpeak 74.2 °C

WHC-SD-WM-DP-103, REV. 0

[Signature] 1-27-95

S94T000371 N2

13.704 mg

Rate: 10.0 °C/min

File: 00106.001

TG

METTLER

27-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.75 mg

-63.85 %

ResidC. 4.95 mg

36.15 %

Dpeak 79.0 °C

WHC-SD-WM-DP-103, REV. 0

191

5. mg

100.

200.

300.

400.

°C

S94T000371 (DUP) N2

13.429 mg

Rate: 10.0 °C/min

File: 00108.001

Ident: 0.0

TG

METTLER

27-Jan-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -8.60 mg
-64.07 %
Resid. 4.82 mg
35.93 %
Dpeak 77.0 °C

S94T000004 N2

12.874 mg

Rate: 10.0 °C/min

File: 00110.001

Ident: 0.0

TG

METTLER

27-Jan-95

222-S

Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis

Height -8.83 mg

-68.57 %

ResidC. 4.05 mg

31.43 %

Dpeak 81.0°C

S94T000004 (DUP) N2

12.903 mg

Rate: 10.0 °C/min

File: 00112.001

TG

METTLER

27-Jan-95

Ident: 0.0

222-S Laboratory

Step Analysis

Height -8.76 mg

-67.93 %

ResiC. 4.14 mg

32.07 %

Dpeak 79.0 °C

WHC-SD-WM-DP-103, REV.0

194

LABCORE Data Entry Template for Worklist# 497

Analyst: DW/S Instrument: TGA01 Book # 42N8-A

Method: LA-560-112 Rev/Mod 4-2

WHC-SD-WM-DP-103, REV. 0

Worklist Comment: Please run BY-106 TGA under N2. bdv

GROUP	PROJECT	S TYPE	SAMPLE#	R A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1 STD			TGA-01	SOLID	<u>59.19</u>	<u>58.49</u>	<u>N/A</u>	%
95000007	BY-106	2 SAMPLE	S95T000084	0	TGA-01	SOLID	<u>N/A</u>	<u>25.28</u>		%
95000007	BY-106	3 DUP	S95T000084	0	TGA-01	SOLID	<u>25.28</u>	<u>20.63</u>	<u>N/A</u>	%

Final page for worklist # 497

Daniel W. Smith 3-16-95
Analyst Signature Date

Blandina Valenzuela 3/22/95
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.

TGA STD 42N8-A
22.163 mg

File: 00002.001 TG METTLER 16-Mar-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height-12.96 mg
-58.49 %
ResidC. 9.20 mg
41.51 %
Dpeak 96.3 °C

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 196 TO 198.

Blandina Valenzuela
3/22/95
for DWS 50.

File: 00004.001 TG METTLER 16-Mar-95
 Ident: 0.0 222-S Laboratory

S95T0000084 N2
 37.045 mg Rate: 10.0 °C/min

Step Analysis
 Height -9.37 mg
 -25.28 %
 Resid. 27.61 mg
 74.53 %
 Dpeak 189.0 °C

S95T000084 (DUP) N2

20.264 mg

Rate: 10.0 °C/min

File: 00006.001

TG METTLER

16-Mar-95

Ident: 0.0 222-S Laboratory

Step Analysis

Height -4.18 mg

-20.63 %

Resid. 16.08 mg

79.37 %

Dpeak 155.0 °C

WHC-SD-WM-DP-103, REV. 0

LABCORE Data Entry Template for Worklist# 554

Analyst: SNF Instrument: TGA01 Method: LA-560-112/A2

Worklist Comment: Please run BY-106 TGA under N2. bdv WHC-SD-WM-DP-103, REV. 0

Seg	Type	Sample#	Rep	AI	Test	Matrix	Actual	Found	DL	Unit
1	STD	42 N8-A			TGA-01	SOLID	59.19	58.75	N/A	%
2	SAMPLE	S95T000098	0		TGA-01	SOLID	N/A	27.38		%
3	DUP	S95T000098	0		TGA-01	SOLID	27.38	28.93	N/A	%
4	SAMPLE	S95T000099	0		TGA-01	SOLID	N/A	38.01		%
5	DUP	S95T000099	0		TGA-01	SOLID	38.01	36.62	N/A	%

Final page for worklist # 554

Lucie M. Fulton
Analyst Signature

3-15-95
Date

Re Jan
Verified by Blandina Valenzuela

3-16-95
3-22-95

Data Entry Comments:

Sample S95T000098: light brown & grainy - like brown sugar
Sample S95T000099: dark brown clay like material
also with dark brown grains

TGA STD 42N8-A

14.982 mg

Rate: 10.0 °C/min

File: 00223.001

TG METTLER

15-Mar-95

Ident: 0.0

222-S Laboratory

SIGNATURE BELOW REPRESENTS CHEMICAL TECHNOLOGIST/CHEMIST THAT
COMPLETED/VERIFIED THE CALIBRATION/ANALYSIS ON PAGES 200 TO 204.

Step Analysis

Height -8.80 mg

-58.75 %

ResiC. 6.18 mg

41.25 %

Dpeak 79.2°C

200

5. mg

WHC-SD-WM-DP-103, REV. 0

50.

100.

150.

200.

3/16/95 BDN

Lucie M. Fulton

S95T000098 N2

10.725 mg

Rate: 10.0 °C/min

File: 00228.001 TG METTLER 15-Mar-95

Ident: 0.0 222-S Laboratory

Step Analysis
Height -2.94 mg
-27.38 %
Resid. 7.79 mg
72.62 %
Dpeak 79.0 °C

2. mg

WHC-SD-WM-DP-103, REV. 0

°C

400.

300.

200.

100.

S95T000098 (DUP) N2
15.729 mg

File: 00230.001 TG METTLER 15-Mar-95
Ident: 0.0 222-S Laboratory

Rate: 10.0 °C/min

Step Analysis
Height -4.55 mg
-28.93 %
ResiC. 11.18 mg
71.07 %
Dpeak 89.0 °C

S95T000099 N2

15.712 mg

Rate: 10.0 °C/min

File: 00232.001

Ident: 0.0

TG METTLEH

15-Mar-95

222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

Step Analysis
Height -5.97 mg
-38.01 %
ResidC. 9.74 mg
61.99 %
Dpeak 117.0 °C

17.675 mg

Rate: 10.0 °C/min

Ident: 0.0 222-S Laboratory

WHC-SD-WM-DP-103, REV. 0

```

Step Analysis
Height -6.47 mg
      -36.62 %
Resic. 11.20 mg
      63.38 %
Dpeak 129.0°C

```