

LENGTH= ABSORPTION AND RADIATION LENGTH OF 304SS AND 5083AL.....2/4/86

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THE TABLE BELOW COMES FROM INTERPOLATION OF "REVIEW OF PARTICLE PHYSICS" DATA. A LN-LN INTERPOLATION HAS BEEN MADE USING 'A' FOR INT ABSORPTION LENGTH AND 'Z' FOR RADIATION LENGTH. INTERPOLATED VALUES ARE INDICATED WITH A '*'. .

ELEMENT	A	Z	DENSITY (G/CC)	ABS LENGTH (G/SQ.CM)	RAD LENGTH (G/SQ.CM)
NE	20.180	10	1.21 (LIQ.)	98.5	28.94
MG	24.305	12	1.74	103.5*	25.42*
AL	26.982	13	2.70	106.4	24.01
AR	39.948	18	1.40 (LIQ.)	119.7	19.55
CR	51.996	24	7.19	129.2*	14.92*
MN	54.938	25	7.32	131.3*	14.36*
FE	55.847	26	7.87	131.9	13.84
NI	58.710	28	8.90	133.1*	13.17*
CU	63.546	29	8.96	134.9	12.86

FOR COMPUTATIONAL PURPOSES, MATERIAL COMPOSITIONS ARE TAKEN TO BE:

304SS % BY WEIGHT

5083AL % BY WEIGHT

72% FE

94.75% AL

19% CR

4.45% MG

9% NI

0.15% CR

304SS

ABS LENGTH=1/(.72/131.9+.19/129.2+.09/133.1) = 131.5 G/SQ.CM

RAD LENGTH=1/(.72/13.84+.19/14.92+.09/13.17) = 13.97 G/SQ.CM

FOR DENSITY=8.02 G/CC, THESE CORRESPOND TO:

ABS LENGTH= 16.39 CM= 6.45 INCHES

RAD LENGTH= 1.742 CM= 0.686 INCHES (UNCHANGED IF 0.085% C IS PRESENT)

5083AL

ABS LENGTH=1/(.9475/106.4+.0445/103.5+.0065/131.3+.0015/129.2)

= 106.4 G/SQ.CM

RAD LENGTH=1/(.9475/24.01+.0445/25.42+.0065/14.36+.0015/14.92)

= 23.94 G/SQ.CM

FOR DENSITY=2.68 G.CC, THESE CORRESPOND TO:

ABS LENGTH= 39.7 CM= 15.63 INCHES

RAD LENGTH= 8.93 CM= 3.52 INCHES

SUMMARY

	DENSITY (G/CC)	ABS LENGTH (INCHES)	RAD LENGTH (INCHES)
AR	1.40	33.7	5.50
AL	1.70	21.0	7.60
SS	2.68	15.63	3.52
CU	8.02	6.45	0.686
U	8.96	5.92	0.565
2LB/FT 3 FOAM	18.95	4.14	0.125
	0.032	1010	540