Single-Component Laird T-Putty 508 Thermal Interface Material for heat dissipation

SPECIFICATIONS

MATERIAL SUPPLIER

Laird

INDUSTRY

Thermal Management

APPLICATION

Electronics

MATERIAL SPECS

- Laird T-Putty 508

Typical Properties

- Construction: Ceramic Filled Silicone Based
- Thermal Conductivity (W/mK): 3.5
- Color: Green
- Flow Rate (grams/Min): 40 (.125" orifice @ 90psi
- Density (g/cc): 3.2
- Volume Resistivity (ohm-cm): 2 x 10
- Outgassing (%TML/%CVCM) by mass: .05/.01
- Operating Temp: -40 – 150c

GRACO EQUIPMENT*

Graco C300 Automated Dispense Table with Graco Dispensit valve system

C300 Automation Table:

- Work envelope of 300 mm X / 300 mm Y / 75 mm Z
- Approximate overall dimensions 910 mm X 910 mm X 1800 mm including safety enclosure
- Easy and intuitive on-board operator controls
- 15 kg load capability
- 200 mm/s point to point; 100 mm/s dispense speed
  - Material & application dependent
- Repeatability of the machine is ± 0.01 mm (0.0004 in)
- Accuracy is ± 0.1 mm/300 mm (± 0.004 in/12 in)
- 3D contouring dispense capability
- Servo drive motors for X, Y, Z and dispense axis (theta)
- Ball screw drives with linear guide bearings
- Needle feature options – Automatic needle calibration and clean
- Optional Y slides to increase cycle time
- Light curtain, guarding, and safety interlock system
- Real-time process monitoring with data download
- Proprietary Graco software with easy to use interface

1053 1k Dispense Valve:

- Servo motor driven 1K dispense valve
- Stainless steel metering rod with PTFE sleeve
- Stainless steel spool inlet/outlet valve with PTFE sleeve
- Shot size range: 0.054 to 3.60 cc per stroke, larger shots achieved with multiple strokes
- Outlet needle range 12 to 14 gauge

Supply System:

- Dynamite, single acting supply pump
- 1 gallon pail follower plate
- Air driven pump with 12:1 power factor
- Stainless steel construction
- 5cc per stroke displacement
- Includes connection hoses and fittings to dispense valve

Graco C300 provides ease of use with one control platform for all functions.

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** Exact equipment configuration will vary and depend on factors such as rate of output, length and size of hoses, bead size desired, and container sizes.*

For more information, contact us at 1-877-844-7226 or info@graco.com. Visit us at www.graco.com

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Single-Component Laird T-Putty 508 Thermal Interface – Test Results

SMALL SHOT REPEATABILITY

Small Shot Repeatability

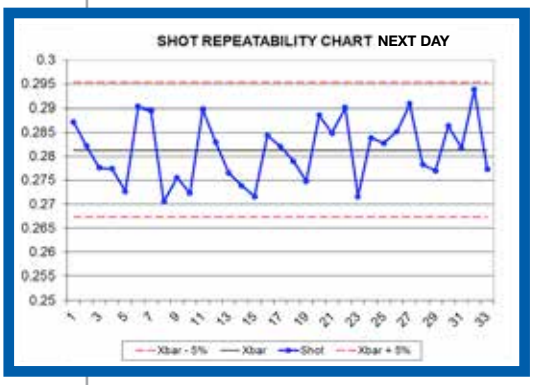
Run	Weight in grams	CC's
1	0.2861	0.0894
2	0.2764	0.0864
3	0.2707	0.0846
4	0.2711	0.0847
5	0.2846	0.0889
6	0.2800	0.0875
7	0.2829	0.0884
8	0.2730	0.0853
9	0.2728	0.0853
10	0.2791	0.0872
11	0.2816	0.0880
12	0.2864	0.0895
13	0.2655	0.0830
14	0.2775	0.0867
15	0.2754	0.0861
16	0.2779	0.0868
17	0.2912	0.0910
18	0.2646	0.0827
19	0.2797	0.0874
20	0.2827	0.0883
21	0.2753	0.0860
22	0.2679	0.0837
23	0.2768	0.0865
24	0.2853	0.0892
25	0.2827	0.0883
26	0.2735	0.0855
27	0.2775	0.0867
28	0.2751	0.0860
29	0.2866	0.0896
30	0.2846	0.0889
31	0.2679	0.0837
32	0.2746	0.0858
33	0.2739	0.0856
Max	0.2912	0.0910
Min	0.2646	0.0827
Rng	0.0266	0.0083
Std	0.0066	0.0021
Avg + 1%	0.280	0.0876
Avg	0.278	0.0868
Avg - 1%	0.275	0.0859

Small Shot Repeatability Next Day

Run	Weight in grams	CC's
1	0.2872	0.0898
2	0.2822	0.0882
3	0.2776	0.0868
4	0.2774	0.0867
5	0.2727	0.0852
6	0.2903	0.0907
7	0.2895	0.0905
8	0.2705	0.0845
9	0.2756	0.0861
10	0.2723	0.0851
11	0.2898	0.0906
12	0.2830	0.0884
13	0.2765	0.0864
14	0.2739	0.0856
15	0.2716	0.0849
16	0.2844	0.0889
17	0.2821	0.0882
18	0.2790	0.0872
19	0.2748	0.0859
20	0.2886	0.0902
21	0.2849	0.0890
22	0.2901	0.0907
23	0.2716	0.0849
24	0.2839	0.0887
25	0.2828	0.0884
26	0.2852	0.0891
27	0.2909	0.0909
28	0.2783	0.0870
29	0.2770	0.0866
30	0.2864	0.0895
31	0.2818	0.0881
32	0.2938	0.0918
33	0.2773	0.0867
Max	0.2938	0.0918
Min	0.2705	0.0845
Rng	0.0233	0.0073
Std	0.0066	0.0021
Avg + 1%	0.284	0.0888
Avg	0.281	0.0879
Avg - 1%	0.278	0.0870

Dispense Pressures

Static Inlet	330-340 psi
Static Outlet	470-480 psi
Dynamic Inlet	330-340 psi
Dynamic Outlet	330-340 psi



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Single-Component Laird T-Putty 508 Thermal Interface – Test Results

MEDIUM SHOT REPEATABILITY

Medium Shot Repeatability

Run	Weight in grams	CC's
1	0.5758	0.1799
2	0.5818	0.1818
3	0.5775	0.1805
4	0.5917	0.1849
5	0.5965	0.1864
6	0.5771	0.1803
7	0.5826	0.1821
8	0.5715	0.1786
9	0.5843	0.1826
10	0.5856	0.1830
11	0.5881	0.1838
12	0.5701	0.1782
13	0.5625	0.1758
14	0.5784	0.1808
15	0.5754	0.1798
16	0.5842	0.1826
17	0.5988	0.1871
18	0.5751	0.1797
19	0.5837	0.1824
20	0.5816	0.1818
21	0.5884	0.1839
22	0.5909	0.1847
23	0.5767	0.1802
24	0.5841	0.1825
25	0.5731	0.1791
26	0.5836	0.1824
27	0.5850	0.1828
28	0.5827	0.1821
29	0.5824	0.1820
30	0.5718	0.1787
31	0.5815	0.1817
32	0.5787	0.1808
33	0.5872	0.1835
Max	0.5988	0.1871
Min	0.5625	0.1758
Rng	0.0363	0.0113
Std	0.0076	0.0024
Avg + 1%	0.587	0.1835
Avg	0.581	0.1817
Avg - 1%	0.576	0.1799

Medium Shot Repeatability Next Day

Run	Weight in grams	CC's
1	0.5861	0.1832
2	0.5871	0.1835
3	0.5906	0.1846
4	0.5779	0.1806
5	0.5808	0.1815
6	0.5855	0.1830
7	0.5801	0.1813
8	0.5810	0.1816
9	0.5976	0.1868
10	0.5629	0.1759
11	0.5829	0.1822
12	0.5732	0.1791
13	0.5897	0.1843
14	0.5970	0.1866
15	0.5646	0.1764
16	0.5813	0.1817
17	0.5773	0.1804
18	0.5907	0.1846
19	0.5930	0.1853
20	0.5860	0.1831
21	0.5870	0.1834
22	0.5648	0.1765
23	0.5867	0.1833
24	0.5827	0.1821
25	0.5930	0.1853
26	0.5872	0.1835
27	0.5723	0.1788
28	0.5853	0.1829
29	0.5773	0.1804
30	0.5896	0.1843
31	0.5813	0.1817
32	0.5793	0.1810
33	0.5686	0.1777
Max	0.5976	0.1868
Min	0.5629	0.1759
Rng	0.0347	0.0108
Std	0.0089	0.0028
Avg + 1%	0.588	0.1838
Avg	0.582	0.1820
Avg - 1%	0.577	0.1802

Dispense Pressures

Static Inlet	310-320 psi
Static Outlet	490-500 psi
Dynamic Inlet	340-350 psi
Dynamic Outlet	490-500 psi

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Single-Component Laird T-Putty 508 Thermal Interface – Test Results

LARGE SHOT REPEATABILITY

Large Shot Repeatability

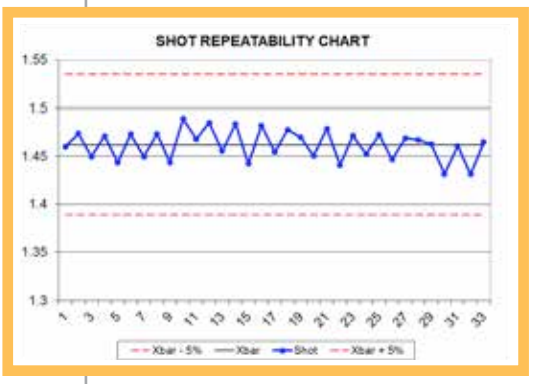
Run	Weight in grams	CC's
1	1.4602	0.4563
2	1.4738	0.4606
3	1.4498	0.4531
4	1.4713	0.4598
5	1.4436	0.4511
6	1.4733	0.4604
7	1.4498	0.4531
8	1.4735	0.4605
9	1.4437	0.4512
10	1.4895	0.4655
11	1.4681	0.4588
12	1.4852	0.4641
13	1.4556	0.4549
14	1.4842	0.4638
15	1.4423	0.4507
16	1.4824	0.4633
17	1.4544	0.4545
18	1.4780	0.4619
19	1.4699	0.4593
20	1.4505	0.4533
21	1.4792	0.4623
22	1.4409	0.4503
23	1.4717	0.4599
24	1.4526	0.4539
25	1.4728	0.4603
26	1.4467	0.4521
27	1.4692	0.4591
28	1.4672	0.4585
29	1.4628	0.4571
30	1.4316	0.4474
31	1.4609	0.4565
32	1.4313	0.4473
33	1.465	0.4578
Max	1.4895	0.4655
Min	1.4313	0.4473
Rng	0.0582	0.0182
Std	0.0157	0.0049
Avg + 1%	1.477	0.4615
Avg	1.462	0.4569
Avg - 1%	1.448	0.4524

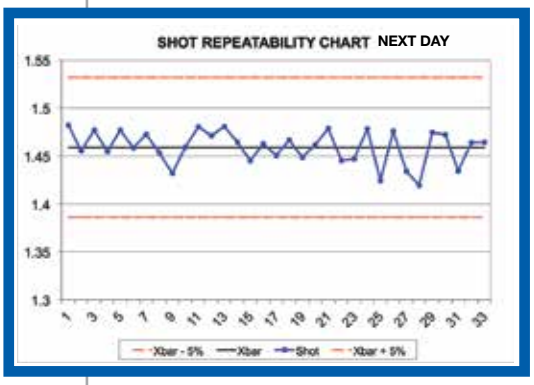
Large Shot Repeatability Next Day

Run	Weight in grams	CC's
1	1.4346	0.4483
2	1.4553	0.4548
3	1.4193	0.4435
4	1.4548	0.4546
5	1.4245	0.4452
6	1.4585	0.4558
7	1.4341	0.4482
8	1.4535	0.4542
9	1.4322	0.4476
10	1.4594	0.4561
11	1.4473	0.4523
12	1.4713	0.4598
13	1.4456	0.4518
14	1.4646	0.4577
15	1.4452	0.4516
16	1.4626	0.4571
17	1.4507	0.4533
18	1.4669	0.4584
19	1.4486	0.4527
20	1.4615	0.4567
21	1.4789	0.4622
22	1.4809	0.4628
23	1.4804	0.4626
24	1.4786	0.4621
25	1.4770	0.4616
26	1.4759	0.4612
27	1.4726	0.4602
28	1.4770	0.4616
29	1.4747	0.4608
30	1.4723	0.4601
31	1.4824	0.4633
32	1.4640	0.4575
33	1.4643	0.4576
Max	1.4824	0.4633
Min	1.4193	0.4435
Rng	0.0631	0.0197
Std	0.0173	0.0054
Avg + 1%	1.474	0.4607
Avg	1.460	0.4562
Avg - 1%	1.445	0.4516

Dispense Pressures

Static Inlet	310-320 psi
Static Outlet	490-500 psi
Dynamic Inlet	340-350 psi
Dynamic Outlet	490-500 psi





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