

Nick

At Smarter Building Systems we research and resell products that stand out as being unique, practical, affordable, and environmentally safe and conscious.



This resin which will be the absolutely perfect complement to the basalt fabrics as a fire retardant product, is made to Class 1 fire ratings standards. It is tested by the countries leading certified facilities.

Phenolics usually smell extremely harsh and the people applying it all hate the process because of that. This formulation has no formaldehydes needed so it is a much friendlier and pleasant experience to work with in comparison.

Intumescent products swell up and crawl like swollen black bugs and give off smoke and char. This resin does not and yet provides the fire ratings protection needed.

Nick

Smarter Building Systems

401-481-8422

Phenolic resin that works-Class 1

Low Smell Resin

SMARTER BUILDING SYSTEMS		
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TG-1074™ Thermal Curing Phenol-Resorcinol Co-Resin

- **Low Temperature Curing.**
 - ❖ Two-part system (*novolac-like*).
 - ❖ Low Voids and reduced Brittleness – unlike typical phenolic resoles and acid catalyzed phenolic novolacs.
 - ❖ Cure can be cured using a comparatively low heat of 90 to 185°F (33 to 85°C).
 - ❖ Flexible Pot Life and Cure Cycles. (3 minutes to 10 days, depending upon the hardener used).
 - ❖ Long Storage Life at Room Temperature (six (6) months typical) – refrigeration is not normally required.
- **Can use conventional or Non-Formaldehyde Hardeners.**
 - ❖ **EU Class E1** Non-Formaldehyde Hardeners can be used resulting in less than 0.1 ppm “free-formaldehyde”.
 - ❖ Fairly Neutral pH of 6.8 to 8.4 (typical); no need for costly Acid Resistant Tooling.
 - ❖ Water is used for tool clean-up.
 - ❖ No solvents are used; no need for special Environmental Protection and Worker Safety precautions.
- **Tailored to meet processing requirements**

Open & Closed Molding	Hand Lay-up	Filament Winding
Vacuum Forming	Foam	Pultrusion
Compression Molding	RTM & VARTM	More....
- **Maybe thermally enhanced with POSS® nano-composite technology.**
 - ❖ Can also be nano-reinforced with Carbon Nano-fibers, MMT, Polysiloxane and others.

Property	Resin only	System (Resin plus Hardener) <i>Note: Depends upon the hardener selected</i>
Non-Volatiles (Solids) @ 135°C (275°F):	70 – 74%	70 – 74%
RL @ 25°C (77°F)	1.58	1.56 to 1.65
Specific Gravity	1.23	1.16 to 1.24
pH @ 25°C (77°F)	6.8 to 8.4	6.8 – 8.4
Water solubility	Infinite	Infinite
Free Formaldehyde (%)	< 0.1	< 0.1
Residual Water	≤ 10% (<i>< 8% available</i>)	< 10%
Storage Life	6-months (typical)	N/A
Pot Life	N/A	Depends upon Hardener <i>ex. 30 to 40 minutes with TG-33C Hardener, 12-hours with TG-45T Hardener, others available ~200 with TG-33C hardener</i>
Viscosity (cps)	800 to 1,200	
TYPICAL MECHANICAL PROPERTIES		
Tensile (ASTM D638)		141 Mpa 20,450 psi
Flexural (ASTM D790)		152 Mpa 22,000 psi
Flexural Modulus (ASTM D790)		13.2 Gpa 1,914,498 psi
Compression (ASTM D695)		90.1 Mpa 13,000 psi
Barcol Hardness (ASTM D2583)		45 – 65
Typical Fire Resistance of cured laminates		
ISO 4589-2 Oxygen Index		90%
ASTM E-84 Surface Burning Characteristics		Class 1 (Flame Spread ≤ 5 & Smoke ≤ 5)
ASTM E-162 Surface Flammability		Average Flame Spread Index = 0
ASTM E-662 Smoke Density; Non-Flaming		Ds(1.5-min) = 0.41 Ds(4-min) = 4.9 Ds(10-min) = 19.8
ASTM E-662 Smoke Density; Flaming		Ds(1.5-min) = 0.93 Ds(4-min) = 18.3 Ds(10-min) = 62.3
UL-94 Flammability of Plastic Materials		UL 94V-0
BS 476, Pt 6 Surface Spread of Flame		Class 0 (I < 6, L < 12)
BS 476, Pt 7 Surface Spread of Flame		Class 1
BS 6853 Annex B2 and D.8.4 Toxicity		Meets all criteria (0.77)
DIN 5510 Railway Fire Testing		Flammability S4; Smoke SR2; Drips ST2
ISO 5658 Reaction to Fire		HL-4 (MAHRE < 60 kW/m²)
FM 4910 (UL 2360) Cleanroom Flammability testing protocol		Passes

Resin pricing

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PRICE LIST TG-1074 Thermal Curing Resin

Description: Thermal curing liquid Phenol-Resorcinol co-resin (novolac-like)

Ordering Notes:

- TG-1074 has less than 12% residual water.
- TG-1074-10 has less than 10% residual water.
- TG-1074-08 has less than 8% residual water.

Pricing:

- **Engineering Quantities**

TG-1074 (standard; others depend upon availability)
○ 800-g (1-qt can) \$ 15.75US
○ 3.6-kg (1-gal can) \$ 52.75US
○ 22.7-kg (5-gal pail) \$ 240.63US
○ 200-kg (440-lbs Drum) \$1,979.00US
 - **Less Than Container Load (LCL) Quantities**

Level "A" Minimum Ordering Quantity:

○ 200-kg (440-lbs Drum)	1-MT (<i>five (5) Drums</i>).	
	"CIF" Houston, Texas	"EXW" Korea
	\$1,957.00US/Drum	\$1,780.00US/Drum

Level "B" Minimum Ordering Quantity:

○ 200-kg (440-lbs Drum)	5-MT (twenty-five (25) Drums	
	"CIF" Houston, Texas	"EXW" Korea
	\$1,834.00US/Drum	\$1,664.00US/Drum
 - **Full Container Load Quantities (FCL)**

Note: A FCL contains seventy-two (72) drums.

○ 200-kg (440-lbs Drum)	"CIF" Houston, Texas	"EXW" Korea
	\$1,724US/Drum	\$1,558.00US/Drum
- **Certified Manufacturer Annual Volume Pricing is based upon three (3) FCL per year with a minimum order of one (1) FCL per order.**
- | | | |
|-------------------------|----------------------|-------------------|
| ○ 200-kg (440-lbs Drum) | "CIF" Houston, Texas | "EXW" Korea |
| | \$1,632.00US/Drum | \$1,466.00US/Drum |

Notes:

1. Certified Manufacturer Annual Volume Pricing is established via specific Certified Manufacturer Licensing Agreement.
 - (a) Should an annual quantity of less than the agreed upon annual amount be purchased - the price will be adjusted accordingly and the differential payment due.
 - (b) Should an annual quantity greater than the agreed upon annual amount be purchased - the price will be adjusted accordingly and the differential credit be applied toward future purchases.
 - (c) A minimum ordering amount of one (1) metric ton ("LCL Quantities") per item will apply. If less than the minimum ordering amount is required, these may be at increased prices ("Engineering Quantities") – due to manufacturing volume requirements.
2. The purchaser has no right to provide samples or resale.

General Terms & Conditions

1. PURCHASER is to arrange for own shipping or to specify shipping details (ie. Carrier, Type, etc.).
 - (a) Should the PURCHASER request Thermalguard Technology to make the necessary shipping arrangements, Thermalguard Technology will provide the PURCHASER with an estimate of the shipping charges. All Shipping Charges are due in full upon Invoice.
2. Payment terms: Payment with Order (*unless otherwise agreed to by Thermalguard Technology, LLC*).
3. Thermalguard Technology, LLC has the right to change prices without prior notice.

Hardener Pricing

Engineering Quantities TG-3350 TG-3382 TG-1882 TG-1215T

- 800g (1-qt can) \$ 19.60US \$ 19.75US \$ 20.50US \$ 21.00US
- 3.7-kg (1-gal can) \$ 69.50US \$ 70.00US \$ 75.00US \$ 76.00US
- 25-kg (5-gal pail) \$ 320.00US \$ 340.00US \$ 360.00US \$ 380.00US

Less Than Container Load (LCL) Quantities

Note: Minimum Ordering amount is 1-MT of combined items

- TG-3350 200-kg (Drum) \$2,450.00US/Drum
- TG-3382 200-kg (Drum) \$2,350.00US/Drum
- TG-1882 200-kg (Drum) \$2,330.00US/Drum
- TG-1215T 25-kg (Fiberboard Drum) \$ 295.00US/FB Drum

Full Container Load Quantities (FCL)

Note: A FCL contains seventy-two (72) drums that weigh 200-kgs each or the equivalent in weight of fiberboard drums.

- TG-3350 200-kg (Drum) \$2,150.00US/Drum
- TG-3382 200-kg (Drum) \$2,070.00US/Drum
- TG-1882 200-kg (Drum) \$2,050.00US/Drum
- TG-1215T 25-kg (Fiberboard Drum) \$ 260.00US/FB Drum

Certified Manufacturer Annual Volume Pricing is based upon two (2) FCL per year with a minimum order of one (1) FCL per order. Volume Deals are available with this option.