SMOOTH-ON
SINCE 1895

EPOXY RESIN HARDENERS

Technical Bulletin 117

Description: The table that follows shows the handling characteristics, cured hardness and maximum heat resistance (heat distortion temperature) of various combinations of epoxy resin and hardener. All systems, except for Sonite 41, must be allowed to gel at room temperature so that exothermic heat is dissipated before any exposure to an elevated temperature. The cure schedules shown are those required for optimum property development.

Properties:					Polyamide
Sonite Hardener	01	03	07	08	16
Amine Equiv. Wt.	20.6	24.4	47.5	47.5	38.0
PHR	10.9	12.9	25.0	25.0	20.0
Viscosity: amine w EEW 190[2]	.10-.20	.20-.30	14-16	3-6	8-15
Pot Life mins.[3]	30	30	15	25	55
Exotherm C[3]	235	180	205	220	215
Cure at 25C	3 days	3 days	4 days	4 days	16 hours
or Cure:hrs/C	2/100	2/100	1/100	1/100	2/210
Post-Cure:hrs/C					2/175
HDT:C	120	120	90	95	140
Hardness B-935	78	78	78	76	78

[1] Parts amine by weight required per 100 parts epoxy resin (EEW 190).

[2] Epoxide Equivalent Weight

[3] Pot Life of 100g @ 25C. Maximum temperature of 450g in 1-Pint Can @ 25C. Brookfield Viscosity in POISE
HDT=HEAT DISTORTION TEMPERATURE PER ASTM D648-82 Hardness measured with Barcol-935 Impressor

APPLICATION: Sonite 01 and 03 are v*ery* similar in handling characteristics and yield cured resins with comparable physical properties. Materials should be stored and used in a warm environment (72° F / 22 °C). They also have a limited shelf life and should be used as soon as possible. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk.

The 01 is more hazardous (higher vapor pressure) than 03 but provides superior chemical resistance. Sonite 07 cures epoxy resin rapidly in thin films at 25°C making it useful in "gel coat" applications. Sonite 08 is not quite as fast as 07 but has lower viscosity for impregnating fiber glass (hand laminating). Sonite 11 cures v*ery* slowly at 25°C but provides clear castings with "blush free" exposed surface. Sonite 15 will "set" at 25°C and develop superior heat resistance when post cured (cast vacuum forming molds). Sonite 19 provides low viscosity for applications requiring high impact resistance. Sonite 41 requires staged heat curing for maximum heat resistance. The polyamides - 125 and 140 - provide toughness and excellent adhesion.

The above combinations provide excellent strength when cast and cured as shown. Tensile strengths exceed 10,000 psi. Compressive Moduli are above 500,000 psi. In addition these materials are extremely adhesive yielding Tensile Shear Strengths over 2,000 psi. Sonite 11 and the polyamides have somewhat lower cohesive strength but superior adhesion. **Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.**

CAUTION: Epoxy resins are irritating to the eyes and skin. Avoid prolonged or repeated skin contact to prevent possible sensitization. Use only with adequate ventilation. If contaminated flush eyes with water for 15 minutes and seek medical attention. Remove from skin with waterless hand cleaner, then soap and water.

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WARNING: Primary aliphatic amines such as Sonite 01, 03, 11 and 19 and hardeners like Sonite 15 which contain a substantial amount of such an amine, are corrosive materials which can cause severe eye and skin burns. They are sensitizers that may cause dermatitis from skin contact/or vapor inhalation. Sonite 01 represents the most serious hazard of the above group. Modified aliphatic amines like Sonite 07, 08 and the polyamides constitute a similar hazard on a considerably lesser scale. Sonite 15 and 41 contain methylene dianiline, an aromatic amine that is a known hepatotoxin and suspected carcinogen.Use these products only with adequate ventilation. Remove contaminated clothing and wash from skin with soap and water. In case of eye contamination, flush with water for 15 minutes and get medical attention. Refer to Material Safety Data Sheets for additional information on individual products.

DISCLAIMER: These products have been tested to assure conformance to certain quality control standards. However, since the manufacturer has no control over the actual application, no warranty is expressed or implied regarding the results to be obtained from the use thereof. User must determine suitability of these products for the intended applications and assume all risk and liability in connection therewith.