

Advanced Materials**RenGel[®] 177 - 148 / Ren[®] 1500**

POLISHABLE, STYRENE-RESISTANT,
EPOXY-BASED SURFACE COAT

DESCRIPTION :

RenGel[®] 177 - 148 (Resin) when used with Ren[®] 1500 (Hardener) yields a thixotropic, polishable, styrene-resistant and heat-resistant, epoxy-based surface coat. Gloss readings of greater than 90 (Gardner) have been obtained on polished surfaces of this system.

It should be backed with a heat and chemical resistant epoxy laminating system such as RenLam[®] 4005 or RenLam[®] 4014 with either Ren[®] 1500 or Ren[®] 1510.

This system is non-staining and does not contain VCHD or MDA.

APPLICATIONS :

RenGel[®] 177 with Ren[®] 1500 with a suitable epoxy laminate backup can be used in the construction of high gloss molds for styrene-containing parts.

MIXING INSTRUCTIONS :

Reaction Ratio 100R to 12H by weight with Ren[®] 1500

Mixing: Stir each component thoroughly before use. Weigh each component accurately (\pm 5%) into clean containers. Thoroughly mix resin and hardener together (minimum 3 minutes) scraping container sidewalls, bottom and mixing stick several times to assure a uniform mix.

TYPICAL MIXED PROPERTIES :

Property	ASTM Test Method	Test Values ⁽¹⁾
Gel time (4 fl. oz.)	D-2471	45 mins.
Color Mixed Resin	Visual	Dark gray
Hardener		Amber
Mixed		Dark gray
Sag Resistance, Mixed		Pass 3/8"
		Fail 1/2"
Tack time at 77 °F		Approximately 2 hours
⁽¹⁾ Tested @ 77 °F (25 °C)		

TYPICAL CURED PROPERTIES :

Property	ASTM Test Method	Test Values⁽¹⁾
Specific Gravity	D-792	1.39
Cubic inch per lb.	D-792	19.9
Hardness (Shore D)	D-2240	90
Ultimate Compressive Strength (psi)	D-695	24,900
Ultimate Flexural Strength (psi)	D-790	10,500
Flexural Modulus (psi)	D-790	4.9 x 10 ⁵
Ultimate Tensile Strength (psi)	D-638	7,100
Tg per DMA	D-648	268 °F (131 °C)
Coefficient of Thermal Expansion (in/in/°C) 77 to 212 °F	D-3386	5.65 x 10 ⁻⁵
Shrinkage (in/in) Cast Mold# 0	D-2566	.004

⁽¹⁾ Cure Schedule – 24 hours at 77 °F (25 °C) + 2 hours at 150 °F (66 °C) + 2 hours at 200 °F (93 °C) + 2 hours at 250 °F (121 °C) + 2 hours at 300 °F (149 °C)

NOTE : Typical Properties – These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed establishing product specifications, please consult with our Quality Control Department.

CURING INSTRUCTIONS :

After gelling at room temperature for 16 to 24 hours, the following post cure schedule is recommended : Two hours at 150 °F (66 °C) on the mold if possible, plus two hours at 200 °F (93 °C) plus two hours at 250 °F (121 °C) plus two hours at 300 °F (149 °C).

Temperature limitations of the mold or model dictate whether it can be used as the supporting structure during the post cure cycle. If the tool must be pulled from the model for the post cure, a supporting frame must be provided.

Uniform heat distribution is also required during post cure ; concentrated heat, such as that directed from a lamp, can cause warp. An elevated temperature cure will slightly increase the shrinkage compared to a room temperature cure.

POLISHING PROCEDURE* :

1. Fabricate and post cure tool.
2. Hand wet sand with 400-grit emery cloth until surface is uniform.
3. Wet sand with progressively smaller grit, 600, 800, 1000, 1200, and 2000, until a uniform surface is obtained.
4. Buff with electric or air operated buffer and machining glaze until a uniform surface is obtained at 1000-1400 rpm.
5. Polish with final glaze polishing compound at 1000-1400 rpm.

* Gloss readings greater than 90 have been obtained using this procedure.

STORAGE / HANDLING INFORMATION :

RenGel® 177 - 148 and Ren® 1500

Store at 60 – 100 °F in a dry place After use tightly reseal.

Work in a well ventilated area and use clean, dry tools for mixing and applying For two component system, combine the resin and hardener according to mix ration. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65 °F (18 °C) when mixing.

RenGel® 177 - 148

This product may crystallize upon storage. If crystallized, vent container and heat to 125 ° - 145 °F until crystals dissolve.

Stir well after product has liquefied.

SHELF LIFE :

Provided materials are stored under the recommended storage conditions in their original containers, they will remain in useable condition for at least six months from date of shipping.

PACKAGING :

This product is available in the following package size(s) :

6-Quart units (11" total) with appropriate 6-pint hardener (1.44# total)
Pail Units = Pail resin (60#) with RP 1500 hardener (gal.) (6#)

Please call Customer Service (800-367-8793) for price and availability.

SAFETY / HANDLING PRECAUTIONS :

Do not use or handle this product until the Material Safety Data Sheet has been read and understood.

RenGel® 177 - 148

DANGER Causes severe skin irritation. Causes eye irritation. May cause skin burns and allergic skin reaction.

Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Ren® 1500

DANGER CORROSIVE – causes skin and eye burns. Harmful if absorbed through skin. May cause allergic skin and respiratory reactions.

Do not get in eyes, on skin, or on clothing. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Nuisance dust may be generated when sanding or sawing cured material.

FIRST AID :

In case of contact with :

Skin : Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.

Eyes : Immediately flush with water for at least 15 minutes. Call a physician.

Ingestion : If conscious, give plenty of water to drink. Do not induce vomiting. Call a physician.

Inhalation : Remove to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Other : Referral to physician is recommended if there is any question about the seriousness of any injury.

PRECAUTIONARY NOTE :

Thermosetting systems generate heat when curing. The amount of heat and the period of time in which heat is released vary significantly between systems. Additionally, ambient or compound temperature, amount of material mixed, and construction and shape of the mold or container can also be factors in the temperature profile of a mixed system. In some cases, the thermosetting reaction can be vigorous, generation heat sufficient to cause decomposition of the system with subsequent liberation of large volumes of acrid smoke.

A good rule of thumb is never mix more material than can be applied during the stated pot life or gel time. Also take care when using materials in applications other than stated on the product Data Sheet, i.e., a laminating resin for casting.

Please feel welcome to call our Product Information Department or your local Ren representative for instructions before you start your job.

Caution To protect against any potential health risks presented by our products, the use of proper personal protective equipment (PPE) is recommended. Eye and skin protection is normally advised.

Respiratory protection may be needed if mechanical ventilation is not available or is insufficient to remove vapors. For detailed PPE recommendations and exposure control options consult the product MSDS or a Huntsman EHS representative.

IMPORTANT LEGAL NOTICE

Huntsman Advanced Materials warrants only that its products meet the specifications agreed with the user. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications.

The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.

WHILE ALL THE INFORMATION AND RECOMMENDATIONS IN THIS PUBLICATION ARE, TO THE BEST OF HUNTSMAN ADVANCED MATERIAL'S KNOWLEDGE, INFORMATION AND BELIEF, ACCURATE AT THE DATE OF PUBLICATION, nothing herein is to be construed as a warranty, whether express or implied, including but without limitation, as to merchantability or fitness for a particular purpose. In all cases, it is the responsibility of the user to determine the applicability of such information and recommendations and the suitability of any product for its own particular purpose.

The behavior of the products referred to in this publication in manufacturing processes and their suitability in any given end-use environment are dependent upon various conditions such as chemical compatibility, temperature, and other variables, which are not known to Huntsman Advanced Materials. It is the responsibility of the user to evaluate the manufacturing circumstances and the final product under actual end-use requirements and to adequately advise and warn purchasers and users thereof.

Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Advanced Materials containing detailed information on toxicity, together with proper shipping, handling and storage procedures, and should comply with all applicable safety and environmental standards.

Hazards, toxicity and behavior of the products may differ when used with other materials and are dependent on manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made known to handlers, processors and end users.

Except where explicitly agreed otherwise, the sale of products referred to in this publication is subject to the general terms and conditions of sale of Huntsman Advanced Materials LLC or of its affiliated companies including without limitation, Huntsman Advanced Materials (Europe) BVBA, Huntsman Advanced Materials Americas Inc., and Huntsman Advanced Materials (Hong Kong) Ltd.

Huntsman Advanced Materials is an international business unit of Huntsman Corporation. Huntsman Advanced Materials trades through Huntsman affiliated companies in different countries including but not limited to Huntsman Advanced Materials LLC in the USA and Huntsman Advanced Materials (Europe) BVBA in Europe.

Ren, RenLam and RenGel are registered trademarks of Huntsman Corporation or an affiliate thereof in one or more, but not all, countries.

Copyright © 2007 Huntsman Corporation or an affiliate thereof. All rights reserved.

Main Offices :

Huntsman Corporation

10003 Woodloch Forest Dr.
The Woodlands
Texas 77380
(281) 719-6000

Huntsman Advanced Technology

Center

8600 Gosling Rd.
The Woodlands
Texas 77381
(281) 719-7400

Website :

www.huntsman.com/advanced_materials