

Aradur[®] 3805 Hardener

Product Description

Aradur[®] 3805 Hardener is a waterborne amine curing agent designed for use in formulating two components for ambient as well as heat cured coatings. Aradur[®] 3805 is compatible with both modified and unmodified liquid epoxy resins, such as Araldite[®] GY 9513 and Araldite[®] GY 6010. It can also be formulated with a Type - 1 epoxy resin dispersion, such as Araldite[®] PZ 3901 when a fast dry time is required.

Applications

- Concrete coatings
- Primer and Topcoats for general metal substrates
- Coatings for asphalt and plastics
- Wood coatings

Features

- Rapid hardness development
- Long pot-life
- Good abrasion resistance
- Excellent pigment wetting
- Very low odor
- Excellent performance for wet or damp concrete
- Excellent compatibility with epoxy resins

Typical Properties*

Property	Aradur® 3805
Appearance	Clear yellowish
Color, Gardner, max	9
Amine value, mg KOH/g	185 - 215 (on solution)
Use level with Araldite® GY 6010, phr	144
H ⁺ active equivalent, g/eq	270 (on solution)
Viscosity @ 25°C, cP	Z - Z4
Density @ 25°C (77°F), g/cm ³	1.08
Flash point, closed cup, °C	> 93
Non volatiles, %	59 - 61
Solvents, %	
water	49
2-propoxyethanol	38
Glacial acetic acid	13

*Typical properties are based on Huntsman's test methods. Copies are available upon request.

Processing

Clear Coating Starting Formulations (parts by weight)

Product	1	2
Araldite® GY 6010 Resin ¹	100	-
Araldite® GY 9513 Resin ²	-	100
Aradur® 3805 Hardener	144	135

¹Standard bisphenol-A liquid epoxy resin (epoxy equivalent weight: 182 - 192)

²Modified bisphenol-A liquid epoxy resin (epoxy equivalent weight: 196 - 205)

Processing Data

Parameter	1	2	Test Method
Mix viscosity @ 25°C, cP	3640	1870	ASTM D4440 (ICI Cone & Plate)
Gel time, 100 g, 23°C, min	232	313	Gardco® gelation timer Model GT-S

White Enamel Coating Starting Formulation (Parts by Weight)

Product	Pounds	Gal
Part A		
Araldite® GY 9513 Resin	159.78	17.56
2-propoxyethanol	14.98	2.02
Part B		
Aradur® 3805 Hardener	215.70	23.97
Byk 019 (BYK Chemie)	12.48	1.42
Byk 333 (BYK Chemie)	3.00	0.37
Tioxide TR93 (Huntsman)	249.65	7.50
<i>Disperse to Hegman 6 - 8</i>		
2-propoxyethanol	14.98	2.02
Water	369.48	44.51
Total, Part A & Part B	1045.54	100.00

White Enamel Coating Processing Data

Product	1
Mix Ratio A:B, by wt	1 : 5
Mix Ratio A:B, by vol	1 : 4
Part A viscosity, KU	67
Part B viscosity, KU	83
Mixed viscosity, KU	88
Pot-life, h	~ 7
PVC, %	19.6
Solids, wt %	53.4
Solids, vol %	40.6
VOC, g/l	178.5

Typical Physical Properties

Unless otherwise stated, the data were determined with typical production batches using standard test methods. They are typical values only, and do not constitute a product specification.

Clear Coating

Property	1	2	Test Method
Tack-free time, hours @ 23°C / 50% R.H.	5.5	6.0	Gardner circular drying time recorder on 10 mil wet coating
Cure-through time, hours @ 23°C / 50% R.H.	12.5	14.0	Gardner circular drying time recorder on 10 mil wet coating
Film appearance @ 23°C / 50% R.H.	Glossy	Glossy	Visual

Clear Coating properties (5-mil, 7 days @ 23°C / 50% Relative Humidity)

Property	1	2	Test Method
Pencil hardness	B	B	ASTM D3363
Persoz hardness, s	100	97	ASTM D4366
Cross-cut adhesion	4A	4A	ASTM D3359
Impact resistance, (Direct/Rev.), in·lb	66 / 12	108 / 8	ASTM D2794
Mandrel bend	> 25	> 25	ASTM D522
Taber abrasion, mg	151	186	ASTM D4060

¹Place a droplet of deionized water on coating periodically beginning at the tack-free time and continually throughout the cure cycle. Record the time at which no visible defect is seen on the coating film after evaporation of the droplet.

White Enamel Coating properties

Property	Value
Tack-free time, hours @ 23°C / 50% R.H.	5.25
Cure-through time, hours @ 23°C / 50% R.H.	12.5
Film appearance @ 23°C / 50% R.H.	Glossy

Property / Time (h)	½	1	2	3	4	5	6	7	8
Gloss 60°, %	60	93	100	100	98	97	97	94	87
Mix viscosity, KU	88	88	81	76	79	79	83	86	86

White Enamel Coating (5-mil wet)

Property	7 days	14 days
Pencil hardness	B	F
Persoz hardness, s	21	130
Cross-cut adhesion	5A	5A
Impact resistance (Direct/Rev.), in-lb	52 / 12	42 / 8
Mandrel Bend	> 25	> 25

Storage

Aradur® 3805 Hardener should be stored in a dry place, in the sealed original container, at temperatures between 2°C and 40°C (36°F and 104°F). Under these storage conditions, the product has a shelf life of **2 years** (from date of manufacture). The product should not be exposed to direct sunlight.

Precautionary Statement

Huntsman Advanced Materials Americas LLC maintains up-to-date Safety Data Sheets (SDS) on all of its products. These sheets contain pertinent information that you may need to protect your employees and customers against any known health or safety hazards associated with our products. Users should review the latest MSDS to determine possible health hazards and appropriate precautions to implement prior to using this material.

First Aid!

Refer to SDS as mentioned above.

KEEP OUT OF REACH OF CHILDREN

FOR PROFESSIONAL AND INDUSTRIAL USE ONLY

Important Legal Notice

Sales of the product described herein ("Product") are subject to the general terms and conditions of sale of either Huntsman Advanced Materials LLC, or its appropriate affiliate including without limitation Huntsman Advanced Materials (Europe) BVBA, Huntsman Advanced Materials Americas Inc., or Huntsman Advanced Materials (Hong Kong) Ltd. ("Huntsman"). The following supercedes Buyer's documents.

Huntsman warrants that at the time and place of delivery all Products sold to Buyer shall conform to the specifications provided to Buyer by Huntsman.

While the information and recommendations included in this publication are, to the best of Huntsman's knowledge, accurate as of the date of publication, NOTHING CONTAINED HEREIN (EXCEPT AS SET FORTH ABOVE REGARDING CONFORMANCE WITH SPECIFICATIONS PROVIDED TO BUYER BY HUNTSMAN) IS TO BE CONSTRUED AS A REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS, OR WARRANTIES AS TO QUALITY OR CORRESPONDENCE WITH PRIOR DESCRIPTION OR SAMPLE, AND THE BUYER ASSUMES ALL RISK AND LIABILITY WHATSOEVER RESULTING FROM THE USE OF SUCH PRODUCT, WHETHER USED SINGLY OR IN COMBINATION WITH OTHER SUBSTANCES.

No statements or recommendations made herein are to be construed as a representation about the suitability of any Product for the particular application of Buyer or user or as an inducement to infringe any patent or other intellectual property right. Buyer is responsible to determine the applicability of such information and recommendations and the suitability of any Product for its own particular purpose, and to ensure that its intended use of the Product does not infringe any intellectual property rights.

The Product may be or become hazardous. The Buyer should obtain Material Safety Data Sheets and Technical Data Sheets from Huntsman containing detailed information on Product hazards and toxicity, together with proper shipping, handling and storage procedures for the Product, and should comply with all applicable governmental laws, regulations and standards relating to the handling, use, storage, distribution and disposal of, and exposure to the Product. Buyer shall also take all steps necessary to adequately inform, warn and familiarize its employees, agents, direct and indirect customers and contractors who may handle or be exposed to the Product of all hazards pertaining to and proper procedures for safe handling, use, storage, transportation and disposal of and exposure to the Product, and the containers or equipment in which the Product may be handled, shipped or stored.

[Product Brand] is a registered trademark of Huntsman LLC or an affiliate thereof in one or more, but not all countries.

© 2015 Huntsman Advanced Materials Inc.

Main Offices:

Huntsman Corporation
10003 Woodloch Forest Dr
The Woodlands, TX 77380
888-564-9318

Huntsman Advanced Technology Center
8600 Gosling Rd.
The Woodlands, TX 77381
281-719-7400