

**RHOPLEX™ 1950**

Acrylic Emulsion For
Plasticizer-Free Sealants and Patching Compounds

Table of Contents

Introduction
Typical Physical Properties
Features
Benefits
Table 1 – Cartridge and Knife-Grade Formulation
Table II – Application Properties and Stability
Table III – Mechanical Properties
Table IV – Adhesion of Formulation AS-50-1
Patching Mortar Formulation (#SPM2903-4)
Safe Handling Information

Rhoplex 1950 acrylic emulsion is a high solids (63%) Dow binder designed specifically for high-performance sealants and patching compounds. The Rhoplex 1950 acrylic emulsion allows the formulator to produce a flexible sealant without the addition of an external plasticizer.

TYPICAL PHYSICAL PROPERTIES

The following physical properties are considered typical of Rhoplex 1950 emulsion. They should not be regarded as specifications.

Appearance	Milky – white liquid
Solids	63%
Viscosity @ 25°C	150 cps.
pH (as packed)	5.0
Density	8.7 lbs/U.S. gallon
Specific Gravity	1.04
Tg (calculated)	-50°C
Storage Stability	Protect from freezing

FEATURES

Plasticizer-free sealants, such as those based on Rhoplex 1950, are critical in applications where durability and aesthetics are important. Sealants based on Rhoplex 1950 are ideal for patching cracks in masonry walls prior to painting.

Typical latex acrylic and polyurethane sealants contain supplementary plasticizers and oils. Over time, these plasticizers and oils migrate out of the sealant and attract dirt and support mildew growth.

Rhoplex 1950's low-Tg eliminates the need for supplementary plasticizers and, hence, the associated problems.

BENEFITS

Sealants based on Rhoplex 1950 possess a number of important advantages over typical acrylic latex and polyurethane sealants because they are free of plasticizers:

- Excellent resistance to dirt pick-up and mildew growth
- Low shrinkage
- Low-temperature flexibility
- Superior retention of flexibility, elongation, movement properties upon aging
- Outstanding long-term durability
- No paint glossing

Rhoplex 1950 emulsion eliminates the problem of plasticizer migration, which can embrittle the sealant over time. Rhoplex 1950 based sealants do not harden or crack with age or UV exposure. In addition, they possess exceptional adhesion to masonry substrates.

TABLE I

FORMULATION GUIDE WITH RHOPLEX 1950 POLYMER CARTRIDGE AND KNIFE-GRADE FORMULATION (AS-50-1)

Material	Pounds	Gallons
RHOPLEX 1950 (63%)	387.4	44.55
KATHON™ LX (1.5%)	1.3	0.15
Octylphenoxy Polyethoxy Ethanol, 70% active (T-DET 407)	10.0	1.09
Ethylene Glycol	7.5	0.81
Thickener (Natrosol 250 MXR)	3.8	0.34
Dispersant (KTPP)	1.3	0.06
TAMOL™ 850	1.5	0.15
Calcium Carbonate (Camel Tex)	726.5	32.18
Titanium Dioxide (Ti-Pure R-901)	16.1	0.48

} premix

Mix the above for 1 1/4 hours, then incorporate

RHOPLEX 1950 (63%)	129.1	14.85
Mineral Spirits (Varsol #1)	29.3	4.47

Mix for ten minutes, add

Defoamer (Nopco NXZ)	1.1	0.15
70% active (T-DET 407)	10.0	1.09
70% active (T-DET 407)	10.0	1.09

Mix for an additional 5 minutes

Total Volume, Gallons	99.30
% Solids by Wgt., (Theory)	82.26
% Plasticizer on Binder	0.0
Pigment/Binder Ratio	2.28/1
Pigment/(Binder + Plasticizer) Ratio	2.28/1
PVC	47.05
Volume Solids (Theory)	69.93
Density, Pounds/Gallon @ 25°C	13.24

RAW MATERIAL SUPPLIERS

RHOPLEX 1950 - Rohm and Haas Company, Philadelphia, PA
KATHON LX (1.5%) - Rohm and Haas Company, Philadelphia, PA
 Union Carbide, Danbury, CT
 Natrosol 250 MXR - Hercules, Inc., Wilmington, DE
 T-DET 407 - Harcros Company, Kansas City, KS
 KTPP - FMC Corporation, Philadelphia, PA
TAMOL 850 - Rohm and Haas Company, Philadelphia, PA
 Camel Tex - Genstar Stone Products Company, Hunt Valley, MD
 TiO₂, Ti-Pure R-901 - E. I. duPont de Nemours and Company, Chemicals and Pigments
 Department, Wilmington, DE
 Varsol No. 1 - Exxon Corporation, Houston, TX
 Nopco NXZ - Diamond Shamrock, Process Chemicals Division, Morristown, NJ

TABLE II

RHOPLEX 1950—APPLICATION PROPERTIES AND STABILITY CAULK FORMULATION AS-50-1

pH Initial	7.9
Aged ¹	7.4
<u>Consistency²(sec)</u>	
Initial	6.1
Aged ¹	6.1
<u>Extrusion Rate²(g/sec)</u>	
Initial	45.1
Aged ¹	45.2
<u>Channel Cracking³</u>	
cure = 1 wk @ 50°C.	No Cracking
<u>Vertical Channel Slump⁴: (mm)</u>	
Room Temp	1.0

¹Caulk heat aged 30 days @ 50°C.²Consistency and extrusion rate testing temperature = 25°C.³White pine, 6" X 1/2 X 3/4 channel.⁴Aluminum, 6" x 1/2 x 3/4 channel.

TABLE III

RHOPLEX 1950—MECHANICAL PROPERTIES¹ CAULK FORMULATION AS-50-1

<u>Tensile Strength²(psi.)</u>	
Maximum	21.3
@ Break	11.6
<u>% Elongation²</u>	
@ Maximum psi.	335
@ Break	680
<u>Flexibility³</u>	
-15°F, 1/2" dia. mandrel	pass
180° Bend	
<u>Hardness, Shore A</u>	
30 days @ 25°C/50% RH	42

¹25°C/50% RH.²Cure time = 2 weeks @ 25°C/50% RH.³Cure time = 1 week @ 25°C/50% RH, then 1 week @ 50°C.

TABLE IV

RHOPLEX 1950—ADHESION OF FORMULATION AS-50-1¹

Substrate	Adhesion² (pli)
Glass ³	3A
Aluminum	15 CP
Birch Plywood	7A

¹Cure = 1 week @ 25°C/50% RH + 2 weeks @ 50°C.²Failure modes A = Adhesive CP = Cohesive Peak; pli = pounds per linear inch.³Silane adhesion promoters (such as Silane Z-6040, Dow Chemical Co.) can be added to the formulation to improve adhesion to glass. However, the long-term shelf stability of silanes in the AS-1950-1 formulation is limited.**SAFE HANDLING INFORMATION**

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