SPICOATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION AND **CORROSION SPECIALISTS**

ENAMO GRIP SAS

Technical Data Sheet (04/20/18)

DESCRIPTION

ENAMO GRIP SAS is a two-part aliphatic polyurethane enamel, based on the same chemistry as the base formula of ENAMO GRIP, yet designed using a proprietary system to give the slick surface for resisting attachment of algae, debris and ice crystals, while having embedded nano-particles to resist deterioration of the coating surface from blown sand and birds. ENAMO GRIP SAS will self-level to an even and smooth finish. It is tough enough to withstand the abrasion of most wind-blown materials.

TYPICAL USES

- > For architectural and maintenance solutions that require the utmost in exterior durability and low dirt retention;
- For anti-graffiti protection;
- Inside exit tubes in industrial plants to resist accumulation or build-
- Exterior of boat hulls to resist barnacle and algae attachment;
- When a slick finish is needed, but toughness is required.
- > ABS approved

APPLICATION METHODS

ENAMO GRIP SAS is applied in three coats to build up thickness in order to withstand atmospheric conditions, storms and abuse. ENAMO GRIP SAS can be applied to metal, concrete, masonry, wood and other porous surfaces. The application can be by brush, roller, or airless sprayer. For specific instructions on surface preparation, mixing and application, please refer to the SPI's application instructions for ENAMO GRIP SAS.

NOTE: This product must not be applied over chlorinated rubber or surfaces where chlorinated rubber has been.

NOTE: Never use mineral spirits to prep surfaces or to thin this product.

NOTE: After dried, no other coatings can be applied.

MINIMUM SPREAD RATE (mil thickness)

Porous Surfaces - Apply 1 application of RUST GRIP or ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet / 1.2 mils dry (102 microns wet/30.4 dry); this coat will absorb into substrate surface. Apply 3 additional coats of ENAMO GRIP SAS @ 401 sq.ft./gallon; 4 mils wet/1.2 mils dry, each application, observing dry-times noted on Application Instructions between coats.

Non-Porous Surfaces – Then apply 3 coats of ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet/1.2 mils dry (102 microns wet/30.4 microns dry) each application.

Clear Coat Only - Apply 3 coats of ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet/1.2 mils dry (102 microns wet/30.4 microns dry) each application.

NOTE: Surfaces must be sealed prior to application to prevent absorption of the SAS when applied. According to type (metal, concrete or wood), a sealer is used before applying ENAMO GRIP SAS.

PHYSICAL DATA

- Reacted Solids: Clear--By weight: 31% / By volume: 30%
- 40-90 minutes to tack free at 70°F (21°C)
- Overcoat window is two hours or less at 70°F (21°C)
- Lead-free / Chromate-free
- Cures by chemical reaction
- Reacted Weight: clear—8.0 lbs/gal.
- Aliphatic Polyurethane
- Shelf Life: Up to 2 years (unopened) under appropriate storage conditions (See MSDS)
- Reactive VOC: Clear--4.51 lbs/gal.
- Mix Ratio: 3 parts base to 1 part curing agent by volume
- Pot-Life: 6-8 hours @ 70°F (21°C), 1 hour at 90°F (32°C)
- Maximum Surface Temperature when applying: 150°F (65°C)
- Minimum Surface Temperature when applying: 40°F (5°C)
- Maximum Surface Temperature after curing: 300°F (149°C)
- Impact Resistance: Front--160psi, back--100psi

SAFETY PRECAUTIONS

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include without limitation: proper ventilation, use of proper lamps, wearing of protective clothing and masks, tenting, and proper separation of application areas. coating is flammable. Keep away from flame, fire, or other sources of ignition. For more specific safety procedures, please refer to the ENAMO GRIP SAS Material Safety Data Sheet. KEEP OUT OF THE REACH OF CHILDREN.

LIMITATION OF LIABILITY: The information contained in this data sheet is based upon tests LIMITATION OF LIABILITY: The information contained in this data sheet is based upon tests that we believe to be accurate and is intended for guidance only. All recommendations or suggestions relating to the use of the products made by SPI, whether in technical documentation, or in response to a specific enquiry, or otherwise, are based on data which to the best of our knowledge is reliable. The products and information are designed for users having the requisite knowledge and industrial skills, and the end-user has the responsibility to determine the suitability of the product for its intended use.

SPI has no control over either the quality of condition of the substrate, or the many factors affecting the use and application of the product. Therefore, SPI does not accept any liability arising from loss, injury, or damage resulting from such use or the contents of this data sheet (unless there are written agreements stating otherwise).

The information contained in this data sheet is subject to modification as a result of practical experience and continuous product development. This data sheet replaces and annuls all previous issues and the user has the responsibility to ensure that this sheet is current prior to using the product.

SPI COATINGS

PROVEN PERFORMANCE • REAL WORLD SOLUTIONS

INSULATION
AND
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ENAMO GRIP SAS

Application Instructions (04/20/16)

DESCRIPTION

ENAMO GRIP SAS is a two-part aliphatic polyurethane enamel, based on the same chemistry as the base formula of ENAMO GRIP, yet designed using a proprietary system to give the slick surface for resisting attachment of algae, debris and ice crystals, while having embedded nano-particles to resist deterioration of the coating surface from blown sand and birds. ENAMO GRIP SAS will self-level to an even and smooth finish. It is tough enough to withstand the abrasion of most wind-blown materials.

SURFACE PREPARATION

Surface must be clean from oil, tar, rust, grease, salts, and films.

- Use general degreaser if needed but must remove any residue on surface.
- Clean surface using TSP (tri-sodium-phosphate) or a citrus cleaner to release dirt and degreaser residue.
- 3) Pressure-wash, if possible, @ 3500 psi.
- 4) Salt contamination on a surface can come as a result of salt water, fertilizers, and car exhaust. Use Chlor-Rid or equivalent to decontaminate surface if salts are present. Acceptable levels: Nitrates: 5-10 mcg/cm², Sulfates: 5-10 mcg/cm², Chlorides: 3-5 mcg/cm²

Surface must be completely dry before applying.

- ENAMO GRIP SAS must be applied during proper temperatures (below) and the prescribed overcoat window must be followed as indicated under 'Application'.
- If applied over an existing coating having a glossed or shiny finish, it must be sanded and roughed to remove gloss before application, to improve the profile.
- 3) Additional coats of ENAMO GRIP SAS can only be applied when the 1st coat becomes tacky to the touch and has little to no transfer of coating. After this stage, the surface must be lightly sanded to improve the profile. Do not allow the initial coat to fully dry before applying subsequent coats over it.

MIXING

- Open pail, mix base with curing agent (3 parts base: 1 part curing agent) (ratio by volume, not by weight)
- Mix by hand for two minutes or using drill and mixing blade for a minimum of 30 seconds with NO vortex.

POT LIFE

6-8 hours at 70°F (21°C) - 1 hour at 90°F (32°C)

TEMPERATURE

- 1) Apply between 40°F (4°C) and 100°F (38°C).
- Maximum temperature for continuous use when cured is 300°F (149°C).
- 3) Store unmixed product between 40°F (4°C) and 100°F (38°C) according to hazmat standards on MSDS.
- Mix base and curing agent and wait 30-45 minutes before use; if below 60°F, wait one hour.
- 5) See Note #4 in "Application."

APPLICATION

ENAMO GRIP SAS can be applied by brush, roller or spray; however, the preferred method is by air or airless sprayer.

- 1) If application is by brush, use a soft bristle brush.
- 2) If application is by roller, use a 1/4-inch nap roller.
- 3) If application is by spray, use a standard airless sprayer (1.5 gallons/minute at 3,300 psi.) with a .011-.015 tip.

- NOTE: The number of applications and the thickness of each should be in accordance with the job specifications.
- NOTE: It may be necessary to "back-roll" coated surface when using a brush or roller.
- NOTE: Temperatures must always be a minimum of 5 degrees above the dew point during application.
- NOTE: In hot (90°F) temperatures and 85% humidity climates, cut the ENAMO GRIP SAS 4-gallon kit with one quart of MAK solvent (Methyl n-Amyl Ketone) to slow down the flash off and skinning of the surface film.

MINIMUM SPREAD RATES (mil thickness)

Apply 1 application of RUST GRIP or ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet / 1.2 mils dry (102 microns wet/30.4 dry); this coat will absorb into substrate surface. Apply 3 additional coats of ENAMO GRIP SAS @ 401 sq.ft./gallon; 4 mils wet/1.2 mils dry, each application, allowing to dry until tacky @ 70°F (21°C) under sun or heat.

Non-Porous Surfaces – Then apply 3 coats of ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet/1.2 mils dry (102 microns wet/30.4 microns dry) each application, observing previous dry-times between coats.

<u>Clear Coat Only</u> – Apply 3 coats of ENAMO GRIP SAS @ 401 sq.ft./gallon (37.2 sq.mtr/gallon); 4 mils wet/1.2 mils dry (102 microns wet/30.4 microns dry) each application.

NOTE: Surfaces must be sealed prior to application to prevent absorption of the SAS when applied. According to type (metal, concrete or wood), a sealer is used before applying ENAMO GRIP SAS.

CURE TIME

- 1) 45-90 minutes to tack free at 70°F (21°C).
- 2) Overcoat window is two hours or less at 70°F (21°C).
- 3) If temperature is over 90°F (32°C), overcoat window and pot life is shortened to 1 hour.
- 4) Fully cures in ten days.

CLEAN-UP EQUIPMENT

- During breaks, spray system should be flushed with solvent
- After completion, spray systems should be flushed and cleaned with MEK or other comparable solvents.
- After completion, brushes and rollers should be cleaned with MEK or other comparable solvents, stored and reused.

APPLICATION OVER CAULK

Only use a high performance, solvent-borne, polyurethane caulk. (Do not use a water-borne caulk or one that is water soluble.)

SECTION I - IDENTIFICATION OF PRODUCT AND COMPANY:

PRODUCT IDENTIFIER: ENAMO GRIP SAS Base

GHS PRODUCT IDENTIFIED: Global Harmonized System #3208.90.000

CHEMICAL TYPE: Two-part, Hydroxl functional polyol

MANUFACTURER: SUPERIOR PRODUCTS INT'L II, INC.

ADDRESS: 10835 W. 78th St., Shawnee, KS 66214

PRODUCT USE: Applied to provide a tough, protective topcoat

EMERGENCY TELEPHONE NUMBER: 800/424-9300; 202/483-7616

SECTION II - HAZARD IDENTIFICATION:

The product is a flammable, solvent-based polyurethane and should be treated according to all known safety precautions. Refer to Section VII for Storage and Handling recommendations, Section VIII for Personal Protection, Section XIV for transport.

SECTION III - HAZARDOUS INGREDIENTS:

<u>HAZARDOUS INGREDIENTS</u> %	<u>CAS/PIN</u>	$\underline{\text{TLV}}$	$\underline{\mathrm{PEL}}$
n-butyl acetate	32.46 123-86-4	150.00	150.00
Methyl Isobutyl Ketone	18.28 108-10-1	50.00	50.00
Toluol	15.27 108883	100.00	100.00
Ethyl 3-Ethoxypropianate	33.99 763-69-9	N/A	N/A

SECTION IV - FIRST AID MEASURES:

INHALATION: Remove to fresh air. Give oxygen if required. Seek medical help.

EYES: Flush w/clear lukewarm water for 15-20 minutes, occasionally lifting eyelids. See physician.

SKIN: Remove contaminated clothing. Wash affected areas & clothing w/mild soap & water.

INGESTION: Do not induce vomiting. Keep at rest. Get prompt medical attention. **SECTION V - FIREFIGHTING MEASURES**:

CONDITIONS OF FLAMMABILITY: Spraying or other activities to create finely divided droplets around open flame/sparks

HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, aldehydes, fumes **AUTOIGNITION TEMP.**: >499C. degrees **FLASH POINT & METHOD**: 40F. TCC

FLAMMABLE LIMITS: (Lower) 1.4% (Upper) NAV

SENSITIVITY TO STATIC DISCHARGE? NAV

SENSITIVITY TO MECHANICAL IMPACT? NAV

SPECIAL PROCEDURES: Firefighters should wear full-body protection & SCBA **MEANS OF EXTINCTION**: Foam, water spray (fog), dry chemical, carbon dioxide & vaporizing liquid type extinguishing agents

SECTION VI - ACCIDENTAL RELEASE MEASURES:

Ventilate the area, control spill by covering w/sawdust or similar agent. Pour decontamination solution over spill (non-ionic surfactant Union Carbide's Tergitol TMN-10 (20%) + water (80%); avoid breathing vapors

SECTION VII - HANDLING AND STORAGE:

Storage Requirements: Maintain temperature between 32-122F. degrees; average shelf life is 3 years @ 77F. degrees. Empty containers may contain residual liquid or vapors, and should not be pressurized, cut, welded or exposed to ignition sources.

Handling Procedures/Equipment: Ground all containers; use non-sparking tools. Keep away from ignition sources as liquid contains volatiles that give off invisible vapors.

PRODUCT IDENTIFIER: ENAMO GRIP SAS Base

pg 2 of 2

SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION:

Personal Protective Equipment: Half-face respirator w/organic vapor filter, safety glasses w/shields, PVA or nitrile chemical-resistant gloves, skin protection

Engineering Controls: Mechanical exhaust fans; use explosion proof equipment

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE AND ODOR: White-colored liquid, ester solvent odor

SOLUBILITY IN WATER: Insoluble

FREEZING POINT: NAP

BOILING POINT: >241F. deg. pH: NAP

SPECIFIC GRAVITY: 1.29
COEFF. WATER/OIL: NAV
VAPOUR DENSITY (Air = 1): 1.0+

ODOR THRESHOLD: NAV
EVAPORATION RATE: 1%
VAPOUR PRESSURE: NAV

VOLATILES: 54.1%

SECTION X - STABILITY AND REACTIVITY DATA:

CONDITIONS OF REACTIVITY: By high heat or fire

CHEMICAL INCOMPATIBILITY: Oxidizing materials, aminos, alcohols

CONDITIONS OF INSTABILITY: Stable, under normal conditions

HAZARDOUS DECOMPOSITION PRODUCTS: By high heat/fire--Carbon dioxide,

carbon monoxide, fumes, smoke, aldehydes

CORROSIVE BEHAVIOR? NO

SECTION XI - HEALTH HAZARD DATA:

Health effects to over exposure to CONCENTRATE: Corrosive to mucuse membranes, eyes and skin. The seriousness of the lesions and the prognosis of intoxication depend directly upon the concentration and duration of exposure.

Skin: May cause TEMPORARY skin discloration and irritation

Eyes: May cause severe eye damage

If swallowed: HARMFUL OR FATAL - Causes chemical burns of mouth and stomach; Corrosive to gastrointestinal tract; Paleness and cyanosis of the face; Excessive fluid in the mouth and nose; Bloating of stomach and belching; Nausea and vomiting; Risk of chemical pneumonitis and pulmonary edema

If inhaled: Vapors or mist can cause irritation. People with asthma or lung problems may be more affected; smokers.

SECTION XII - ENVIRONMENTAL INFORMATION:

Air: 4.17 lbs./gallon V.O.C.* Water: Insoluble in water

Soil: Lead- and chromate-free/not hazardous under RCRA 40CFR

SECTION XIII - WASTE DISPOSAL:

Incineration preferred. Dispose of in accordance with federal, state and local government regulations.

SECTION XIV - TRANSPORT INFORMATION:

Classified a hazardous material (Class 3//UN1263//P.G. II//F.P.=5C), and should be marked and handled according to specific regulations. Tariff code: 3208.90.0000

SECTION XV - REGULATORY INFORMATION:

Materials listed under Superfund Amendments & Reauthorization Act of 1988 (SARA) Title III 302, 304, 311, 312, 313: Methyl Isobutyl Ketone (CAS 108-10-1), Toluol (CAS 108883). Meets European codes under Article 59(10) of the Reach regulation.

SECTION XVI - OTHER INFORMATION:

*Product is compliant with many national and local VOC content regulations. However, because manufacturer is not familiar with all local VOC requirements, the user is responsible for understanding the local VOC rules and for verifying that the product selections meet the most current VOC requirements of the area in which the products are to be used.

PREPARATION INFORMATION:

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc. DATE: 3/8/17

SECTION I - IDENTIFICATION OF PRODUCT AND COMPANY:

PRODUCT IDENTIFIER: ENAMO GRIP SAS curing agent

GHS PRODUCT IDENTIFIED: Global Harmonized System #3208.90.000

CHEMICAL TYPE: Aliphatic Polyisocyanate

MANUFACTURER: SUPERIOR PRODUCTS INT'L II, INC.

ADDRESS: 10835 W. 78th St., Shawnee, KS 66214

PRODUCT USE: Applied to provide a tough, protective topcoat

EMERGENCY TELEPHONE NUMBER: 800/424-9300; 202/483-7616

SECTION II - HAZARD IDENTIFICATION:

The product is a flammable, solvent-based polyurethane and should be treated according to all known safety precautions. Refer to Section VII for Storage and Handling recommendations, Section VIII for Personal Protection, Section XIV for transport.

SECTION III - HAZARDOUS INGREDIENTS:

HAZARDOUS INGREDIENTS	<u>%</u>	CAS/PIN	TLV	_PEL
n-Butyl Acetate	19.94	108-10-1	75.00	75.00
Ethyl Acetate 99%	19.94	141-78-6	400.00	400.00
Homopolymer of HDI	60.0	28182-81-2	1mg/m3	
Hexamethylene 1 (HDI)	0.12	822-06-0	O,	

SECTION IV - FIRST AID MEASURES:

INHALATION: Remove to fresh air. Give oxygen if required. Seek medical help if there is a high concentration in one period.

EYES: Flush w/clear lukewarm water for 15-20 minutes, occasionally lifting eyelids. See physician.

SKIN: Remove contaminated clothing. Wash affected areas & clothing w/mild soap & water.

INGESTION: Do not induce vomiting. Keep at rest. Get prompt medical attention.

SECTION V - FIREFIGHTING MEASURES:

CONDITIONS OF FLAMMABILITY: Spraying or other activities to create finely divided droplets around open flame/sparks

HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide, aldehydes, fumes **AUTOIGNITION TEMP.**: >499C. degrees **FLASH POINT & METHOD**: 24F. TCC

FLAMMABLE LIMITS: (Lower) 1.4% (Upper) NAV

SENSITIVITY TO STATIC DISCHARGE? NAV

SENSITIVITY TO MECHANICAL IMPACT? NAV

SPECIAL PROCEDURES: Firefighters should wear full-body protection & SCBA **MEANS OF EXTINCTION**: Dry Chemical--monoammonium phosphate, potassium chloride, carbon dioxide, high expansion (protenic) ehemical foam, water spray for large fires

SECTION VI - ACCIDENTAL RELEASE MEASURES:

Ventilate the area, control spill by covering w/sawdust or similar agent. Pour decontamination solution over spill (non-ionic surfactant Union Carbide's Tergitol TMN-10 (20%) + water (80%); avoid breathing vapors.

SECTION VII - HANDLING AND STORAGE:

Storage Requirements: Maintain temperature between 32-122F. degrees; average shelf life is 3 years @ 77F. degrees. Empty containers may contain residual liquid or vapors, and should not be pressurized, cut, welded or exposed to ignition sources.

Handling Procedures/Equipment: Ground all containers; use non-sparking tools. Keep away from ignition sources as liquid contains volatiles that give off invisible vapors.



PRODUCT IDENTIFIER: ENAMO GRIP SAS curing agent

pg 2 of 2

SECTION VIII - EXPOSURE CONTROLS AND PERSONAL PROTECTION:

Personal Protective Equipment: Half-face respirator w/organic vapor filter, safety

glasses w/shields, PVA or nitrile chemical-resistant gloves, skin protection

Engineering Controls: Mechanical exhaust fans; use explosion proof equipment

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE AND ODOR: Clear/pale yellow medium-low viscosity liquid with

ketone-solvent odor

SOLUBILITY IN WATER: Insoluble, reacts slowly with water to liberate CO2 gas **FREEZING POINT**: NAP **BOILING POINT**: >241F. deg. **VOLATILES:** 54%

SPECIFIC GRAVITY: 1.03 VAPOUR DENSITY (Air = 1): 1.0

COEFF. WATER/OIL: NAV EVAPORATION RATE: 1.22% VAPOUR

PRESSURE: Polyisocyanate @ 7.5x10-5 mmHG@20C **pH**: NAP

SECTION X - STABILITY AND REACTIVITY DATA:

CONDITIONS OF REACTIVITY: By high heat or fire

CHEMICAL INCOMPATIBILITY: Oxidizing materials, aminos, alcohols

CONDITIONS OF INSTABILITY: Stable, under normal conditions; unstable if contacted with water

CORROSIVE BEHAVIOR? NO

HAZARDOUS DECOMPOSITION PRODUCTS: By high heat/fire--Carbon dioxide, carbon monoxide, fumes, smoke, aldehydes

SECTION XI - TOXICOLOGICAL PROPERTIES:

ROUTES OF ENTRY:SKIN CONTACT **X** EYE CONTACT **X** INHALATION **X** SYNERGISTIC PRODUCTS **NAV EXPOSURE LIMITS**: NAV

EFFECTS OF ACUTE EXPOSURE: Burning sensation on mucous membranes & respiratory tract. Flu-like symptoms (fever and chills); skin irritation with constant exposure and no fresh air.

EFFECTS OF CHRONIC EXPOSURE: Chemical asthma - chest tightness, wheezing, coughing, shortness of breath. Can cause lung damage with constant exposure and a lack of fresh air.

MUTAGENICITY:NAVCARCINOGENICITY:NAVIRRITANCY:Burning sensationTERATOGENICITY:NAV

REPRODUCTIVE TOXICITY: NAV

SENSITIZATION: If constant exposure without fresh air, can have reaction.

SECTION XII - ENVIRONMENTAL INFORMATION:

Air: .37 lbs./gallon V.O.C.* Water: Insoluble in water

Soil: Lead- and chromate-free/not hazardous under RCRA 40CFR

SECTION XIII - WASTE DISPOSAL:

Incineration preferred. Dispose of in accordance with federal, state and local government regulations.

SECTION XIV - TRANSPORT INFORMATION:

Classified a hazardous material (Class 3//UN1263//P.G. II//F.P.=-5.C), and should be marked and handled according to specific regulations. Tariff code: 3208.90.0000

SECTION XV - REGULATORY INFORMATION:

Materials listed under Superfund Amendments & Reauthorization Act of 1988 (SARA) Title III 302, 304, 311, 312, 313: Methyl Isobutyl Ketone (CAS 108-10-1), Toluol (CAS 108883). Meets European codes under article 59(10) of the Reach regulation.

SECTION XVI - OTHER INFORMATION:

*Product is compliant with many national and local VOC content regulations. However, because manufacturer is not familiar with all local VOC requirements, the user is responsible for understanding the local VOC rules and for verifying that the product selections meet the most current VOC requirements of the area in which the products are to be used.

PREPARATION INFORMATION:

PREPARED BY: J. Pritchett, Superior Products Int'l II, Inc. DATE: 3/8/17