BONDERITE®

Technical Process Bulletin

BONDERITE S-FN 333 ACHESON DRYFILM COATING

(KNOWN AS EMRALON 333)

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DESCRIPTION

BONDERITE S-FN 333 ACHESON (known as EMRALON 333) is a blend of fluorocarbon lubricants in an organic resin binder and solvent system designed for applications beyond the scope of conventional fluorocarbon coatings. Its low coefficient of friction, hardness, adhesion, resiliency, and cure conditions allow application of **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** in a multitude of places where pure sintered PTFE coatings are unsuitable.

Coatings of **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** wear longer than pure PTFE, offer superior chemical resistance (see data below), and can be repaired without removing the existing coating. **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** combines the toughness of the support resin with the surface properties of pure PTFE.

FEATURES	BENEFITS
• Satiny finish	• Attractive component appearance to secure customer satisfaction
• Low coefficient of friction	• Ability to meet lubrication requirements for the component
• Extremely durable and wear-resistant coating	• Application for a variety of demanding lubrication performance requirements
• Good release properties with a low coefficient of friction	• Ability to meet lubrication and assembly requirements for the component and application
• Wide range of solvent and chemical resistance	• Ability to perform optimally in a variety of harsh environments

TYPICAL APPLICATIONS

- Business machine parts
- Valve plugs
- Drawer guides
- Snow shovels
- Trash containers
- Filter systems
- Carburetor shafts
- Window guides
- Rails
- Wheels
- Levers
- Washers
- Springs
- Valves
- Hedge shears
- Saw blades
- Latches
- Slides and chutes
- Marine equipment
- Spray gun parts
- Lock assemblies
- Industrial tools
- Printing equipment
- Aerospace parts
- Tank linings
- Slides and chutes
- Closed automotive assemblies

TYPICAL PROPERTIES

(of wet product)

Color:	black
Pigment:	blend of fluorocarbons
Binder:	thermoset
Carrier:	BONDERITE L-FG SB-3 ACHESON (known as SB-3)
Diluent:	BONDERITE L-FG SB-3 ACHESON (known as SB_3)

Henkel

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	Consistency:	liquid
	Viscosity:	150 – 120 mPa·s
	Density:	1.13 kg/l (9.4 lb/gal)
	Solids content by weight:	~ 28%
TYPICAL PROPERTIES (wet product continued)	Flash point:	57°C (135°F)
	VOC:	808.0 g/l (6.75 lb/gal)
	Theoretical coverage:	6.54 m^2/kg @ 25μm (300 ft^2/gal @ 1 mil) dry film thickness
TYPICAL PROPERTIES (as cured)	Color:	black
	Coefficient of friction:	0.09 – 0.10 static and kinetic
	Service temperature -continuous:	204°-232°C (400°-450°F)
	Salt spray resistance*:	> 500 hours over zinc phosphated surface, 25 micron film thickness
	Hartman Wear Test:	200,000 cycles at 180# of load
	Tabor Abrasion Test:	16.9 mg weight loss after 1000 cycles
	Solvent and Chemical:	Excellent resistance to some acids, bases, Sodium Chloride solutions, ketones and aliphatic solvents

TYPICAL PROPERTIES (as cured) (continued)

Solvent and Chemical Resistance

Chemical	Concentration	Resistance
Hydrochloric Acid	35%	Excellent
Sodium Hydroxide	50%	Very Good
Nitric Acid	35%	Good
Sulfuric Acid	80%	Excellent
Methyl Ethyl Ketone	100%	Excellent
Methylene Chloride	100%	Excellent
Xylene	100%	Excellent
Sodium Chloride	100%	Excellent

(Exposure: 168 hours at room temperature)

Note: The information in the table above is given only to illustrate the excellent chemical and solvent resistance of this coating. It is recommended that test panels be coated and evaluated in the actual corrosive environment of the application prior to use.

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METHOD OF USE

Surface Preparation

Substrates must be dry and free of contaminants (dirt, grease, powder, and other residues) before application of **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)**. Excellent results can be obtained without pre-treatment. However, for maximum wear characteristics the following pre-treatment's are recommended: heat stable phosphate coating* or grit blasting for steel; grit blasting or heat stable conversion coating for aluminum.

*Detrex Chemical Company, Redford, Michigan; Henkel Corporartion, Madison Heights, Michigan; and others.

Mixing

BONDERITE S-FN 333 ACHESON (known as EMRALON 333) is supplied ready for use, but it should be mixed thoroughly by stirring. For best results, use a low speed propeller-type mixer. Do not vortex or agitate violently, as air entrapment or foaming may cause separation of solids.

Application

BONDERITE S-FN 333 ACHESON (known as EMRALON 333) is normally applied by spray techniques. An external atomizing type gun using an MBC #30 nozzle is recommended. Optimum coating thickness is 0.001 inch (25.4 microns). USE ONLY BONDERITE L-FG SB-3 ACHESON (known as SB-3 SOLVENT) FOR CLEAN-UP. Incompatible solvents will cause gun blockage. **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** can be overcoated for repair purposes without removing the entire original film. Sand lightly or use steel wool to feather the edges of the area to be repaired. Light abrasion of the surrounding areas is also recommended for maximum adhesion. Then apply **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** using the same spray procedures as for the initial application. Follow the standard cure cycle as stated below.

Curing

BONDERITE S-FN 333 ACHESON (known as EMRALON 333) may be cured by exposure to any of the time/temperature conditions indicated in the following table. It is essential that the high boiling solvents in **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** be removed gradually before the cure is completed or the coating will be marred by blisters. Gradual removal of the solvent can be accomplished by preheating the coating for ten minutes at 149°C (300°F) or 177°C (350°F) before curing.

For example, typical cure cycles are:

SUBSTRATE TEMP/TIME	SUBSTRATE TEMP/TIME
(a) 149°C (300°F) 10 min.	260°C (500°F)/ 15 min.
(b) 149°C (300°F) 10 min.	288°C (550°F)/ 9 min.
(c) 149°C (300°F) 10 min.	316°C (600°F)/ 5 min.
(d) 177°C (350°F) 10 min.	371°C (700°F)/ 1 min.
(e) 177°C (350°F) 10 min.	399°C (750°F)/ ½ min.

For optimum properties, cure at 316°C (600°F) or above.

STORAGE/ HANDLING

Shelf life for this product is 2 years from date of qualification under original seal at 24°C (75°F). Prolonged storage of **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)** at temperatures higher than 27°C (80°F) is not recommended. Keep from freezing. Keep container tightly closed when not in use. Store in a cool, well ventilated area. Keep away from heat, sparks, and open flame. Protect material from direct sunlight. Ground and bond containers when transferring materials. Empty containers may retain hazardous properties. Follow all MSDS/label warnings even after container is emptied.

APPLICATION ASSISTANCE

Henkel's Application Specialists are available to assist you in production start-up with **BONDERITE S-FN 333 ACHESON (known as EMRALON 333)**. Visit our website www.achesonindustries.com for more information and for the Henkel global location nearest you.

HEALTH & SAFETY

Please consult Material Safety Data Sheet.

Henkel Corporation | 32100 Stephenson Highway | Madison Heights, MI 48071
PHONE: (248) 583-9300 | FAX: (248) 583-2976 | www.henkelna.com/