

Emralon[®] 333

High performance fluoropolymer lubricant coating

DESCRIPTION

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 **Emralon 333** in a multitude of places where pure sintered PTFE coatings are unsuitable.

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

FEATURES	BENEFITS
<ul style="list-style-type: none"> Satiny finish 	<ul style="list-style-type: none"> Attractive component appearance to secure customer satisfaction
<ul style="list-style-type: none"> Low coefficient of friction 	<ul style="list-style-type: none"> Ability to meet lubrication requirements for the component
<ul style="list-style-type: none"> Extremely durable and wear-resistant coating 	<ul style="list-style-type: none"> Application for a variety of demanding lubrication performance requirements
<ul style="list-style-type: none"> Good release properties with a low coefficient of friction 	<ul style="list-style-type: none"> Ability to meet lubrication and assembly requirements for the component and application
<ul style="list-style-type: none"> Wide range of solvent and chemical resistance 	<ul style="list-style-type: none"> Ability to perform optimally in a variety of harsh environments

TYPICAL APPLICATIONS

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

TYPICAL PROPERTIES (of wet product)

Color	:	black
Pigment	:	blend of fluorocarbons
Binder	:	thermoset
Carrier	:	Acheson SB-3 solvent
Diluent	:	Acheson SB-3 solvent
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

METHOD OF USE

Surface Preparation

Substrates must be dry and free of contaminants (dirt, grease, powder, and other residues) before application of **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.

Mixing

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

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 SB-3 SOLVENT FOR CLEAN-UP. Incompatible solvents will cause gun blockage. **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 **Emralon 333**, using the same spray procedures as for the initial application. Follow the standard cure cycle as stated below.

Curing

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 **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 **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

Acheson's Application Specialists are available to assist you in production start-up with **Emralon 333**. Visit our website www.achesonindustries.com for more information and for the Acheson global location nearest you.

HEALTH & SAFETY

Please consult Material Safety Data Sheet.

NOTES

Emralon 333 is available only from Acheson Colloids U.S. or Acheson Colloiden B.V. For supply out of Asia, a similar product, Emralon 333J is available from Acheson Japan Ltd. Both products are capable in performance properties but slightly different in formulation properties due to material availability. Emralon 333J is available only from Acheson Japan Ltd.

*The data contained on this sheet represents typical properties and is not to be used as a basis for preparation of specifications. Before writing specifications on this product, contact our Specialty Coatings Business Group's Technical Service Department.

Emralon® is a registered trademark of Acheson Industries Inc.

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The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operating conditions. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without the authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the American Chemistry Council's Responsible Care® program.