Technical Data Sheet

XIAMETER™ OFX-0531 Fluid

Amino methoxy-functional polydimethylsiloxane

Features & Benefits

- Excellent detergent resistance
- Durable protection
- Good gloss
- Easy rub out
- Color enhancement
- Premium softener for leather treatments
- Improves abrasion resistance
- Improves water repellency
- Improves surface properties

Composition

- Solvent solution of an amino-functional siloxane

Applications

- As an ingredient in detergent-resistant auto polishes and cleaners.
- Imparting durable silicone characteristics into various top coat formulations.
- Minimizing or eliminating problems of silicone transfer or oiling typical of additions of low molecular weight silicones.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

CTM[1]	Property	Unit	Result
0176	Appearance		Clear, colorless, slightly hazy liquid
0208	Active ingredient	% w/w	50
	Solvents		Aliphatic petroleum distillates and isopropyl alcohol
0004	Viscosity at 25°C	cSt	100–200
0002	Refractive index		1.410
0001	Specific gravity at 25°C		0.865
0021A	Flash point, closed cup	°C	13

1. CTM: Corporate Test Method; copies of CTMs are available on request.

Description – Auto/Home Care

Some formulations benefit from the use of XIAMETER™ OFX-0531 Fluid and XIAMETER™ OFX-0536 Fluid, while others make use of XIAMETER™ OFX-0531 Fluid with XIAMETER™ PMX-200 Silicone Fluid. Chemically, XIAMETER™ OFX-0531 Fluid is a double functional polydimethyl-siloxane. The highly polar nature of the amino-functional groups and the ability of the silicon-functional methoxy groups to cure cause the polish film to deposit and adhere strongly to automobile finishes, chrome and aluminum surfaces.

Solubility

XIAMETER™ OFX-0531 Fluid is soluble in many common organic solvents including aliphatic and aromatic hydrocarbon solvents, isobutane and lower alcohols (absolute). The fluid is not soluble in water and hydrolyses in the presence of water. Properly formulated polish emulsions, however, are very stable and do not lose performance benefits upon ageing. The fluid may also be made more water accepting with acetic acid or other organic acids.

Detergent Resistance

XIAMETER™ OFX-0531 Fluid resists removal by common car wash detergents. Solvent systems were evaluated in side by side panel tests. Polish was applied, rubbed out and dried overnight. An area of panel was then scrubbed for 30 seconds with a concentrated liquid detergent and washed and unwashed sections were evaluated for gloss. Blends of the fluids gave intermediate detergent resistance (Table 1). The best formulations from this first test were then further evaluated on automobiles which were given a thorough commercial wash each week. Results of this test are given in Table 2. The best formulation, six parts XIAMETER™ OFX-0531 Fluid and one part XIAMETER™ OFX-0536 Fluid, had detergent resistance equal to XIAMETER™ OFX-0536 Fluid alone.

Polishing Properties

Polish formulas were evaluated on laboratory panels and on automobiles for ease, depth of gloss and detergent resistance. A blend of six parts XIAMETER™ OFX-0531 Fluid and one part XIAMETER™ OFX-0536 Fluid was excellent in every case, except for a slight compromise in detergent resistance. Other results are given in Table 3.

Typical Formulation

XIAMETER™ OFX-0531 Fluid can be used, depending on desired performance properties, or can be blended to optimize certain properties. It is excellent for formulating liquid, rinse or paste polishes. Polishes formulated with these fluids develop water repellency almost immediately after application, and good detergent resistance develops about three to four hours after application. Optimum detergent resistance develops after about 24 hours.

Table 1:

Detergent Resistance, Panel Test

Silicone base in formula		After detergent scrubbing
XIAMETER™ OFX-0531 Fluid		Slight removal of film
XIAMETER™ OFX-0536 Fluid		No removal of film
XIAMETER™ OFX-0531 Fluid, six parts XIAMETER™ OFX-0536 Fluid, one part	}Blend	Very slight removal of film
XIAMETER™ OFX-0536 Fluid, nine parts XIAMETER™ PMX-200 Silicone Fluid, 30,000 mm^2s^{a1}, one part	}Blend	Film removed
XIAMETER™ PMX-200 Silicone Fluid, 1000 mm^2s^{a1}		Some removal of film

Table 2:

Detergent Resistance, Auto Test

Silicone base in formula		Car wash cycles, polish remains
XIAMETER™ OFX-0531 Fluid		7 to 12
XIAMETER™ OFX-0536 Fluid		10 to 15
XIAMETER™ OFX-0531 Fluid, six parts XIAMETER™ OFX-0536 Fluid, one part	}Blend	10 to 15
XIAMETER™ OFX-0536 Fluid, nine parts XIAMETER™ PMX-200 Silicone Fluid, 30,000 mm^2s^{a1}, one part	}Blend	5 to 10
XIAMETER™ PMX-200 Silicone Fluid, 1000 mm^2s^{a1} (or other dimethylsilicone)		1 to 2

Table 3:

Polish Properties

Silicone base in formula		Ease of application	Polishing ease
XIAMETER™ OFX-0531 Fluid		Excellent	Excellent
XIAMETER™ OFX-0536 Fluid		Good	Good
XIAMETER™ OFX-0531 Fluid, six parts XIAMETER™ OFX-0536 Fluid, one part	}Blend	Excellent	Excellent
XIAMETER™ OFX-0536 Fluid, nine parts XIAMETER™ PMX-200 Silicone Fluid, 30,000 mm^2s^{a1}, one part	}Blend	Excellent	G-Excellent
XIAMETER™ PMX-200 Silicone Fluid		Excellent	Excellent

Silicone base in formula		Depth of gloss	Detergent resistance
XIAMETER™ OFX-0531 Fluid		Excellent	Good
XIAMETER™ OFX-0536 Fluid		Fair	Excellent
XIAMETER™ OFX-0531 Fluid, six parts XIAMETER™ OFX-0536 Fluid, one part	}Blend	Excellent	G-Excellent
XIAMETER™ OFX-0536 Fluid, nine parts XIAMETER™ PMX-200 Silicone Fluid, 30,000 mm^2s^{a1}, one part	}Blend	G-Excellent	Fair-Good
XIAMETER™ PMX-200 Silicone Fluid		Excellent	Poor

Description–Textiles

XIAMETER™ OFX-0531 Fluid is a solution of amino-functional siloxane in solvent with a combination of alkoxy reactivity and organo-functional amine groups, that adds a new dimension to the properties and possible uses of silicone polymers.

Amine-functional groups facilitate co-reactions with many types of plastics such as polyester, urethanes, acrylics and carboxylic acids, imparting durable silicone characteristics into various top coat formulations.

Since the silicone can be chemically reacted into these various polymer systems the problem of silicone transfer or oiling typical of the additions of low molecular weight silicones can be minimized or eliminated.

How to Use–Textiles

XIAMETER™ OFX-0531 Fluid is suitable for application by padding, curtain coating or mixing (in closed equipment). The concentration of silicone required to give the desired properties will depend on the fabric or leather construction and the kind of polymer system to be mixed with. Typical doses are between 10 g/1 and 40 g/1 of product for padding and curtain coating application. The dose for mixing with polymer systems, such as urethanes and acrylics, will depend on the degree of finish required. Normally between 0.5 and 1.5% of silicone solids on the dried weight of leather is recommended.

Padding/Curtain Coating Application

1. Pre-dilute the required amount of fluid with an approximately equal weight of solvent (MIBK, aliphatic or aromatic solvents), and add to the mixing tank. Ensure that mixing tank is cold.
2. Top up to final volume with the solvent used to pre-dilute the fluid.

Precautions:

- Start with clean mixing tank, delivery lines, pad box and rollers.
- Always use cold solvent and use in closed equipment.

Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

Usable Life and Storage

Product should be stored between 0 and 25°C (32 and 77°F) in original, unopened containers.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

Not intended for human injection. Not intended for food use.

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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