

INOFLON®

Fluoropolymer Aqueous Dispersions





About **the company**

Gujarat Fluorochemicals Limited (GFL) is a part of multibillion dollar INOX Group of companies. INOX is a professionally managed business group with interests in diverse businesses such as Fluoropolymers and Fluorochemicals, Refrigerants, Renewable Energy, Cryogenic Engineering, Industrial Gases and Entertainment.

GFL produces Fluoropolymers, Fluorochemicals and Refrigerants in its state of the art manufacturing facilities which are well equipped with QA & Research Center. The Fluoropolymer Chemical Complex is vertically integrated, has its own source of Fluorspar and produces its own monomers which are further polymerised into various Fluoropolymers - PTFE, PVDF, PFA, FEP, FKM, PTFE-Micro powder and PPA. GFL is an ISO 9001:2015, ISO 14001:2015, OSHAS 18001:2007 and IATF 16949:2016 certified organization with an objective to provide quality products and services.

Introduction

INOFLON[®] Fluoropolymer Dispersions

INOFLON[®] fluoropolymer dispersions are polymerized in an aqueous dispersion medium, made from environmental friendly emulsifier and consists of very small particles of fluoropolymer resin. The dispersions are stabilized in water by non-ionic surfactants. All INOFLON[®] fluoropolymer dispersions are PFOA free. INOFLON[®] fluoropolymer dispersions offer an impressive array of following properties that makes them the material of choice for various demanding applications:

- Good film forming properties
- Good wetting
- Good chemical resistance
- Very good abrasion resistance
- Very good adhesion
- High gloss
- Non-stick properties

Aqueous Dispersion PTFE

Grades, Characteristics & Applications:

Grade	Characteristics	Main Applications
AD 9100	Good Wetting Properties Good Penetration Properties Good Weatherability	Belting , Architectural Fabric & Gaskets, Packing Seals & Gaskets, Industrial Fabric, Yarns & Filter Cloth
AD 9200	High Gloss Very Good Abrasion Resistance Good Corrosion Resistance High Shear Stability	Formulations of High Performance Cookware and Industrial Coating
AD 9300	Good Impregnation Low Foaming Good Weatherability	Architectural Fabric & Gaskets, Packing Seals & Gaskets, Industrial Fabric, Yarns & Filter Cloth, Anti Dripping & Impregnation of Graphite Block
AD 9400	High Critical Cracking Thickness Very Good Abrasion & Corrosion Resistance	Metal Coating Formulation, Glass Cloth Coating
AD 9700	Good Chemical Resistance High Heat Resistance	Bearing & Seals

Typical Properties

SL.No	Properties	Unit	Test Method	INFLON® AD9100	INFLON® AD9200	INFLON® AD9300	INFLON® AD9400	INFLON® AD9700
1	Solid Content	%	ASTM D-4441	60	60	60	60	24 ± 2
2	Surfactant Content	%	ASTM D-4441	7.5	6	6	6	5
3	pH	-	ASTM E-70	>9.5	>9.5	>9.5	>9.5	>9.5
4	Particle Size	nm	Internal	230	220	230	220	220
5	Viscosity @ 25 °C	cP	ASTM D-2196	25	20	20	20	-
6	Specific Gravity	-	ASTM D-4441	1.51	1.51	1.51	1.51	1.15

Bimodal & LMD (Low Molecular Weight Dispersion) Aqueous Dispersion PTFE Grades, Characteristics & Applications:

Grade	Characteristics	Main Applications
AD 9210	Excellent Wetting Properties Very High Gloss Excellent Penetration Properties Bimodal Particle Size Distribution	Belting , Architectural Fabric & Gaskets, Packing Seals & Gaskets, Industrial Fabric, Yarns & Filter Cloth
AD9310	Excellent wetting properties Excellent Chemical Resistance Good weatherability High gloss	Architectural Fabric & Gaskets, Industrial Fabric, Yarns, Anti Dripping & Impregnation of Graphite Block.
AD 9410	High Gloss Low Porosity High Critical Cracking Thickness Bimodal Particle Size Distribution	Formulations of High Performance Cookware and Industrial Coating
LMD 7900	High Gloss Low Molecular Weight Dispersion Excellent Penetration Resistance to Wear and Corrosion	Additive in Coatings, Polymers, Paints, Inks and Composites.

Typical Properties:

SL.No	Properties	Unit	Test Method	INOFLON® AD 9210	INOFLON® AD 9310	INOFLON® AD 9410	INOFLON® LMD 7900
1	Solid Content	%	ASTM D-4441	60	60	60	50
2	Surfactant Content	%	ASTM D-4441	8	6.5	6	7
3	pH	-	ASTM E-70	>9.5	>9.5	>9.5	>9.5
4	Particle Size	nm	Internal	205	205	205	160
5	Viscosity @ 25 °C	cP	ASTM D-2196	25	20	20	20
6	Specific Gravity	-	ASTM D-4441	1.51	1.51	1.51	1.40

FEP & PFA Dispersions

Grades, Characteristics & Applications:

Grade	Characteristics	Main Applications
PFA 8900	High Gloss Good Weldability Low Abrasion High MFR	Formulation of High Performance Non-Stick Coatings and Impregnation of Woven Packing, Yarn & Glass Fabric in Combination with PTFE Dispersions.
PFA 8910	High Gloss Good Weldability Excellent Dielectric Properties & Low MFR	Formulation of High Performance Non-Stick Coatings and Impregnation of Woven Packing, Yarn & Glass Fabric in Combination with PTFE Dispersions.
FEP 4910	Excellent Shear Stability Good Wetting Properties Excellent Weatherability Low Settling Tendency	Formulation of High Performance Non-Stick Coatings and Impregnation of Woven Packing, Yarn & Glass Fabric

Typical Properties

SL.No	Properties	Unit	Test Method	INFLON® PFA 8900	INFLON® PFA 8910	INFLON® FEP 4910
1	Solid Content	%	ASTM D-4441	50	60	55
2	Surfactant Content	%	ASTM D-4441	6	6	7
3	pH	-	ASTM E-70	>9.5	>9.5	>9.5
4	Particle Size	nm	Internal	170	170	170
5	Viscosity @ 25 °C	cP	ASTM D-2196	15	20	20
6	Specific Gravity	-	ASTM D-4441	1.40	1.50	1.45
7	Melt Flow Rate	g/10 min	ASTM D-1238	15	2	10

Regulatory compliances

INOFLON® fluoropolymer dispersion complies with

- Food & Drugs Administration (FDA) directive 21 CFR 177.1550.
- EC 10 2011 and hence article 3 of European regulation no. 1935/2004 and German Food Articles of daily use and Feed code of September 1, 2005 (LFGB), Section 30, BFR recommendation

Packaging

INOFLON® fluoropolymer dispersion grades are available in 30 litres (8 gal) plastic drums and 1000 litres (263 gal) IBC recyclable containers.

Applications



Architectural structures

- Good mechanical strength
- Weather resistance
- Soil and stain resistance



Industrial coating

- Corrosion resistance
- Chemical inertness
- Low coefficient of friction



Textile coating

- Water repellent
- Heat resistance
- High gloss



Non-stick cookware

- Non-stick properties
- Heat resistance
- Good abrasion resistance

Handling and Storage of material

- The working site must be clean to ensure fine appearance of final products.
- Aqueous dispersions should be stored at temperatures between 10°C to 25°C.
- It should be homogenized by gentle stirring after every 2 weeks & before use.
- Filtration: Prior to application of the dispersions. Filtration with 50-100 micron Nylon fabric is recommended.
- Shelf life of INOFLON® Fluoropolymer Dispersion is one year from the date of manufacturing.

Safety Precautions

Handling and processing of Fluoropolymer must be done in ventilated area to prevent personnel exposure to the fumes liberated during sintering and heating of the resin. Fumes must not be inhaled and eye and skin contact should be avoided. In case of eye contact flush, water immediately and seek medical help. Smoking Tobacco and cigarettes contaminated with Fluoropolymer may result in a flulike condition including chills, fever and sore throat that may not start until a few hours after exposure has taken place. These symptoms usually pass within about 24 hours. Vapors and gases generated during sintering of Fluoropolymer must be completely removed from the factory areas. Mixtures of some metal powder such as magnesium or aluminum are flammable and explosive under some conditions. Please read the Material Safety Data Sheet and the detailed information in the "Guide to the Safe Handling of Fluoropolymer Resins" published by the Fluoropolymer division by the Society of the Plastic Industries available at www.plasticseurope.org



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