



1ST SECTION - IDENTIFICATION OF THE PRODUCT AND OF THE PRODUCER

VALFLON F[®]

Date of revision 01/01/2008

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Cancels and replaces the foregoing

Name of the producer

Address

Dixon Resine Spa

Via Mezzago, 5 20050 Sulbiate - Milano (ITALY)

Tel: ++39 039 62743.1- Fax: ++39 039 6274301 Email: info@dixon-resine.it

Trade name of the product

VALFLON F[®]

Synonym

PTFE

Chemical name

POLYTETRAFLUOROETHYLENE

Chemical formula

- (CF₂-CF₂)_n -

CAS no. of the base polymer

9002-84-0

2ND SECTION - COMPOSITION/INFORMATION ABOUT THE INGREDIENT

Substances classifiable as dangerous according to EEC Directives 67/548 and 88/379 and following amendments or for which known exposure limits are existing : none

Main componentN° CAS% PresentPhrases of warning

1°) PTFE Base Material

9002-84-0

2°)

3°)

Products containing PTFE as main component (polymeric base) and mineral filling materials according to the following schema :

Standard GradesVirgin VALFLON F[®] gradesSeries 100, Glass fibers filled VALFLON F[®]Series 200, Carbon filled VALFLON F[®]Series 400, Graphite filled VALFLON F[®]Series 600, Bronze powder filled VALFLON F[®]

These products are either colourless white (virgin and series 100), Black (Series 200 and series 400), Brownish (series 600) in appearance. They are odourless

Special GradesSeries 300, Molybdenum disulphide filled VALFLON F[®]Series 500, Special mineral filled VALFLON F[®]Series 500, Stainless steel powder filled VALFLON F[®]Series 900, Special formulated VALFLON F[®] compounds

These products are featured by different colours: Grey (series300), matt white/light grey (series500), metallic grey (series 700), dark grey (VALFLON F[®] 900), black (VALFLON F[®] 903), blue (VALFLON F[®] 904), brownish grey (VALFLON F[®] 907). They are odourless

3RD SECTION - DANGER IDENTIFICATION

POTENTIAL EFFECT ON THE HEALTH

The products of thermal decomposition are very dangerous in case of contact with eyes and skin or when inhaled. In this last case the symptoms do not occur until several hours after exposure.

EYES Redness irritation, burns.SKIN Redness, irritation, burns.INGESTION No health effects are expected.INHALATION Headache, short breathing, cough, chills and fever ("polymer fume fever"), tachycardiaADVERSE EFFECTS AND MAIN RISKS

The product is an inert preparation and no risk is expected for the human health and the environment in its normal use.

The major health hazard associated with this material is the inhalation of thermal decomposition products.

Some risks may be expected at temperature > 350°C for emission of noxious compounds (HF and COF₂) which are extremely corrosive.

Contamination of tobacco must be avoided.

4TH SECTION - FIRST AID

In case of inhalation of vapours from thermal decomposition speed of medical intervention is extremely important. The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

EYE Immediately Flush eyes with large amounts of water for at least 15 minutes.

SKIN Wash skin with water and soap.

INGESTION No need for first aid is anticipated. If person is conscious, flush mouth with water.

INHALATION: Remove person to fresh air. If not breathing, supply artificial respiration or oxygen. Medical attention is recommended, symptomatic treatment indicated.

5TH SECTION - FIRE MEASURES

The self-ignition temperatures (SIT) of solid VALFLON F® products measured in accordance with ASTM D1929 are in the range of 500-560°C and are hence far above those materials capable of sustaining combustion when the ignition source is removed.

All fire tests show that fluoropolymers like VALFLON F® are the most difficult of plastics to set on fire. In all flammability tests, the same picture emerges: only when exposed to an external flame do the gaseous decomposition products ignite. After removal of the igning flame, the combustion process ceases immediately.

FIRE HAZARDS: Possible risk are due to corrosive and toxic effects of by-products from thermal decomposition (HF and COF₂)

FIRE FIGHTING PROCEDURE: Remove the product from the source of flame, if possible to do in safe conditions. Keep containers cool by spraying with water when exposed to fire. Stay opposite the wind and at safety distance from the flames.

SUITABLE EXTINGUISHING MEDIA: Dry chemicals, CO₂, Foam or spray water, depending of the environment.

SPECIFIC PROTECTIVE EQUIPMENT: Self-contained respirator, fire protective equipment and skin apparatus to protect from HF vapours.

6TH SECTION - ACCIDENTAL RELEASE MEASURES

GENERALITY: The release of large amounts of scrapes in working areas may be dangerous for working people.

PERSONAL PRECAUTIONS: Avoid the formation of dust. Ensure sufficient ventilation/exhaustion. Suck off dust, vapours, fumes and their place of origin. Avoid contamination of tobacco (polymer fume fever).

ENVIRONMENTAL PRECAUTIONS: Avoid the uncontrolled release of scrapes in sewage systems, in surface and underground waters, in the soil.

CLEANING / ABSORPTION PROCEDURES: Sweep and scoop out the released material. Dispose of in accordance with local laws and regulations.

7TH SECTION - HANDLING AND STORAGE

HANDLING: Avoid processing above the decomposition temperature (350°C) without adequate venting. Do not smoke during handling. Follow good practices of industrial hygiene.

STORAGE: Keep away from heat, sparks and flames. Do not store near combustible, explosive and incompatible materials.

**8TH SECTION - CONTROL OF THE EXPOSITION / INDIVIDUAL PROTECTION**

PRECAUTIONAL MEASURES: Use general protective and hygienic procedures, do not breathe dust, ensure adequate ventilation during work, vent vapours from high-temperature processing. Do not smoke while working and do not breathe vapours from thermal decomposition.

PERSONAL PROTECTION

EYE/FACE:

Safety goggles

HANDS:

Rubber Gloves

RESPIRATORY PROTECTION:

Breathing Apparatus

BODY PROTECTION:

Work suit or rubber apron.

EXPOSITIONS LIMITS Only the threshold values (ACGIH 1993/94) of the decomposition products are applicable.

Hydrofluoric Acid (HF) : TLV/TWA = 2,6 mg/m³

Carbonilfluoride (COF₂) : TLV/TWA = 5,4 mg/m³

9TH SECTION -PHYSICAL AND CHEMICAL PROPERTIES

PHISICAL STATE	Solid
COLOUR	Depending on fillers and Pigments
ODOURS	Odourless
MELTING POINT	Not Available
APPARENT DENSITY	2,14 ÷ 3,90 gr/cm ³
SOLUBILITY IN ORGANIC SOLVENTS	Insoluble
SOLUBILITY IN WATER	Insoluble
INFLAMMABILITY	Not flammable
EXPLOSIVE PROPERTY	Not explosive
PERCENT VOLATILE	Not Applicable
VISCOSITY	Not Applicable

SEZIONE 10 -STABILITY AND REACTIVITY

STABILITY: Stable in normal condition of use. Negligible decomposition starts above 250°C; at temperatures above 350°C starts the emission of noxious compounds as hydrogen fluoride, carbonyl fluoride, perfluoroisobutylene, hexafluoroethylene.

SUBSTANCES TO BE AVOIDED: The chemical reactivity is very low. Avoid the contact with combustible materials and molten alkali metals.

HAZARDOUS DECOMPOSITION PRODUCTS (PTFE): Decomposition products vary with conditions of combustion and compound's formula. The gaseous compounds generated by thermal decomposition are very toxic and corrosives.

**11TH SECTION - TOXICOLOGICAL INFORMATION**

PRODUCT : Ingestion of and skin contact with PTFE do not produce any toxicological effect . It does not irritate skin and is physiologically inert. Avoid ingestion of products of decomposition vapours.

ADVERSE EFFECT : Delayed and/or immediate effects after short and/or prolonged exposure.

Irritation :	Not irritant. Decomposition products may cause burns on skin and mucosae
Sensitization :	Not sensitizer
Chronic Toxicity :	No known effects
Mutagenesis :	No known effects
Reprotoxicity :	No known effects

EXPERIMENTAL TOXICOLOGICAL DATA :

Referred to pyrolysis products of PTFE at 625°C : LC50 (inhalation, 30 min, rat) = 3500 mg/m³

Referred to pyrolysis products of PTFE at 800°C : LC50 (inhalation, 5 min, rat) = 2700 mg/m³

12TH SECTION - ECOLOGICAL INFORMATION

GENERALITY PTFE is environmental neutral and biologically inert , not water endangering. Use the product according to the good working practice, avoiding polluting the environment .

13TH SECTION - DISPOSAL CONSIDERATIONS

WASTE PRODUCT DISPOSAL : Dispose in landfill according to local laws and regulations of destroy using high-temperature incinerator designed to burn fluorine compounds.

14TH SECTION - INFORMATION ABOUT THE TRANSPORT

GENERALITY The product is not dangerous for transportation and not subject to regulations of transport.

U.N. Number	: Not assigned
Packaging Group	: Not assigned
Road transportation (ADR)	: Not Classified
Rail transportation (RID)	: Not Classified
Sea transportation (IMDG/IMO)	: Not Classified
Air transportation (ICAO/IATA)	: Not Classified

15TH SECTION - INFORMATION OF REGULATION

This product is not considered dangerous according to the CEE Directives 67/548/EEC, 88/ 379/EEC and 99/45/CE.

Labelling Information	: Trade name VALFLON F®
Classification	: Not required
Hazard symbol	: Not required
Risk phrases	: Not required
Safety phrases	: Not required

Product is not cited in European regulation for protection of men and Environment DPR 303/56 (General regulation for safety and hygiene in work places) .

16TH SECTION - OTHER INFORMATION

For other information call the phone numbers of section 1.

The information given in this safety data sheet is for safety purpose only, and believed to be correct as of the date issued ; them are given in good faith and based on the best knowledge and experience of the company at the date of issuing.

The company makes not warranties , expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade.

The company is not responsible for damages caused by the use of the product in applications for which it was not intended or for conditions of use outside its control

The readers have to follow the local regulations concerning the health and the security about the work .



Dixon Resine

TECHNICAL DATA SHEET

Materiale <i>Material</i>	VALFLON® F 110			
Scheda tecnica emessa il - <i>Issued</i> : 05/06/08			Rev.0	
CARATTERISTICA <i>PROPERTY</i>	NORMATIVA <i>STANDARD</i>	UNITA' <i>UNIT</i>	VALORE <i>VALUE</i>	CONDIZIONI <i>TEST CONDITIONS</i>
Proprietà Meccaniche <i>Mechanical Properties</i>				
Carico di Snervamento <i>Yield Stress</i>	ISO 527-1	MPa	≥ 11	Cross Direction -Test speed 50 mm/min
Deformazione Nominale a Rottura <i>Nominal Strain at Break</i>	ISO 527-1	%	≥ 80	Cross Direction -Test speed 50 mm/min
Durezza alla Sfera <i>Ball Indentation Hardness H 132/30</i>	ISO 2039-1	N/mm ²	> 30	--
Durezza Shore D <i>Shore D hardness</i>	ISO 868	--	≥ 60	--
Resistenza alla compressione (deformazione 1%) <i>Compressive Strength (1% strain)</i>	ASTM D 695	N/mm ²	≥ 9	--
Deformaz. sotto carico (P= 13,7 N/mm ² , 24 h) <i>Deformation Under Load (P= 13,7 N/mm², 24 h)</i>	ASTM D 621	%	≥ 7	--
Deformazione Residua dopo 24 h <i>Residual Deformation After 24 h</i>	ASTM D 621	%	≤ 5	--
Proprietà Fisiche <i>Physical Properties</i>				
Colore <i>Colour</i>	Visual Insp.	--	BLACK	--
Densità <i>Density</i>	ISO 1183	g/cm ³	2,04÷2,11	--
Temperatura di Esercizio Continuo <i>Continuous Service Temperature</i>	--	°C	-260 / + 280	--
Coefficiente di dilat.Termica Lineare (25 ÷ 95°C) <i>Coefficient of linear thermal exp. (25 ÷ 95°C)</i>	ASTM D 696	10 ⁻⁵ /°C	8 ÷ 11	--
Proprietà Tribologiche <i>Tribological properties</i>				
Coefficiente di Attrito Statico <i>Static Friction Coefficient</i>	ASTM D3702	--	0,06÷0,18	--
Coefficiente di Attrito Dinamico <i>Dynamic Friction Coefficient</i>	ASTM D3702	--	0,12÷0,25	PV=0,7 N/mm ² · m/s
Fattore di Usura <i>Wear Factor</i>	ASTM D3702		0.010÷0.020	PV=0,7 N/mm ² · m/s
Proprietà Elettriche <i>Electrical Properties</i>				
Rigidità Dielettrica <i>Dielectric Strength</i>	IEC 60243-1	kV/mm	--	Spessore 0,5 mm <i>Thickness 0,5 mm</i>
<p>I dati tecnici menzionati sono solo indicativi e non possono essere considerati come specifiche di prodotto. Qualsiasi modifica / additivazione del materiale, dopo la fornitura, può comportare variazioni dei valori o delle caratteristiche tecniche. I valori sono elaborati su provini standard.</p> <p><i>The above-mentioned technical data are simply indicative for users and they are given without any guarantee. They are not to be considered as specifications. Any modification / additivation of the material after the supplying can involve variation of the values or the technical characteristics. The values are calculated on standard samples.</i></p>				
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From the literature of Teflon® - DuPont , the electrical characteristics are the following :

Resistività di Volume <i>Volume Resistivity</i>	IEC 60093	$\Omega \cdot \text{cm}$	10^5
Resistività di Superficie <i>Surface Resistivity</i>	IEC 60093	Ω	10^7