Material Safety Data Sheet

Issued Aug-29-1991 Revised (7.2) Jun-17-2004

Section1: Chemical Product / Company Identification

Trade name	**POLYFLON PTFE Molding Powder**
Grade	M-12, M-15, M-18, M-18F, M-24, M-31, M-32, M-33, M-391, M-391S, M-392, M-393, M-532
Trade name	**New POLYFLON PTFE Molding Powder**
Grade	M-111, M-112, M-139
Synonym	Polytetrafluoroethylene (PTFE)

Company identification

Manufacturer	DAIKIN INDUSTRIES, LTD.CHEMICAL DIVISION: Umeda Center Bldg., 4-12, Nakazaki-Nishi2-chome, Kita-Ku, Osaka, JAPAN Phone: (+81) 6-6373-4349 Fax: (+81) 6-6373-4389
Supplier in EU	DAIKIN CHEMICAL EUROPE GmbH ImmermannStr.65 d, 40210 Düsseldorf, GERMANY Phone: (+49) 211-1640-834. Fax: (+49) 211-1640-734,
Supplier in US	DAIKIN AMERICA,INC. 20 Olympic Drive, Orangeburg, New York 10962 Phone: +1-800-365-9570
Emergency telephone Company	+81-6-6373-4349, +49-211-179 225 0, +1-845-365-9500

Section 2: Composition / information on ingredients

Component	mass %	CAS No.	Symbol	R-phrases
	100	9002-84-0	-	-

Section 3: Hazard identification

EMERGENCY OVERVIEW

Not considered hazardous under normal usage.
Harmful if thermal decomposition products are inhaled. Normally inhalation problems should not be expected.

Potential Health Effects

Inhalation	Vapors and fumes liberated during hot processing (above 260 C) with this material may cause flu-like symptoms (chills, fever and, sometimes, cough) that may not occur until several hours after exposure and typically pass within about 36 to 48 hours.
Eye	Normally low irritation to the eyes is expected.
Skin	Low-irritating to skin.
Ingestion	Small amounts (tablespoon full) swallowed during normal handling operation are not likely to cause injury. Swallowing larger than that may cause injury.
Chronic	No information found.

Section 4: First aid measures

Inhalation	When thermal decomposition occur, fresh air. Rest. Get medical aid.
Skin Contact	Rinse and then wash skin with water and soap. If skin contact with hot material occurs: DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Immediately flush affected area with plenty of cold water and cover with a clean dressing. Have burn treated by a physician.
Eyes Contact	First rinse with plenty of water for at least 5 minutes (remove contact lenses if easily possible), then take to a doctor.
Ingestion	Rinse mouth. Get medical attention.

SECTION 5: Fire-fighting measures

General Information	Non-flammable. Wear self-contained breathing apparatus (SCBA) and full protective gear. Use water spray to cool fire exposed containers. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media	Water Spray, Powder, alcohol-resistant foam, carbon dioxide.
WARNING:	Combustion products are harmful CO, CO_2, halogenated compounds (e.g. HF, COF_2, PFIB or monomer). TOXIC FLUORINE COMPOUNDS EVOLVED IN FIRE.

SECTION 6: Accidental release measures

General Information	Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks	Collect spilled material and separate from other waste.
WARNING	Fluoropolymers spilled during handling should be cleaned up immediately and appropriate measures taken to prevent the creation of a slippery surface. It is advisable that some form of anti-slip flooring or similar preventive measures be provided in areas where fluoropolymer resins are regularly handled. Slipper surfaces in walking and working areas pose increased accident risks

SECTION 7: Handling and storage

Handling	Close containers after each use. Always wear recommended personal protective equipment. Exposure to toxic gases through inhalation can occur if smoking tobacco becomes contaminated by this material. Therefore, do not smoke in the work areas and wash hands and face after handling in order to avoid transfer of the material onto smoking tobacco.
Storage	Keep away from heat, steam or sunlight. Store in a tightly closed container.

SECTION 8: Exposure controls / personal protection

Engineering Controls	Use local exhaust ventilation facilities. When molding or other operations. If user operations generate fume, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protective Equipment

Eyes	Wear safety glasses with side shields.
Skin	Wear appropriate gloves, when handling this material to prevent thermal burns.
Clothing	Wear protective clothing and boots as required
Respirators	If thermal decomposition occurs, Mask for acidic gases must be used to avoid inhalation of the product.

Exposure Guidelines

HF	TLV: (as F): 3ppm; (ceiling values)(ACGIH 1999) MAK: 3ppm; 2.5mg/m^3, BAT 7mg/g creatinine (1999) MAK as STEL: 6ppm, 5mg/m^3 (1999)
COF_2	TLV: 2ppm; 5.4mg/m^3 (as TWA); 5ppm; 13mg/m^3 (as STEL) (ACGIH 1997)
PFIB	TLV: 0.01ppm; 0.082 mg/m^3 (ceiling values) (ACGIH 1993-1994).

SECTION 9: Physical and chemical properties

Physical State	Solid
Appearance	Milky white powder
Odor	No
Melting point	332-352 C
Apparent density	2.1-2.3 (H_2O=1 at 23 C)
Solubility in water	Insoluble
Autoignition Temp.	NA
Flash Point	NA
Explosion Limits	
lower	NA
upper	NA

SECTION 10: Stability and reactivity

Chemical Stability	Stable under normal temperatures and pressures.
Conditions to Avoid	Ignition sources, excess heat.
Incompatibility	Finely divided metallic powder or filler. Small particles of fluoropolymer resins can become extremely combustible in the presence of various metal fines materials. Metal fines (e.g. aluminum and magnesium) mixed with powdered PTFE when exposed to temperatures above 420 ºC may react violently producing fire and/or explosion.
Decomposition Products	Carbon monoxide, carbon dioxide, HF, COF_2 and PFIB

SECTION 11: Toxicological information

When heated for a long time, a very small quantity of hydrogen fluoride (HF), carbonyl fluoride (COF_2) Perfluoroisobutylene (PFIB) is generated. Further the higher temperature, the larger it will increase. Follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.

(as HF or COF_2)

Burning sensation. Cough. Dizziness. Headache. Laboured breathing. Nausea. Shortness of breath. Sore throat. Vomiting. Symptoms may be delayed.

Inhalation of this gas or vapour may cause lung oedema.

(as PFIB)

The substance irritates the respiratory tract. Inhalation of this gas may cause lung oedema. Exposure may result in death. The effects may be delayed. Medical observation is indicated.

SECTION 12: Ecological information

Exotoxicity is expected to be low based on the near zero water solubility of the polymer. Material is considered inert and not expected to be biodegradable or toxic.

SECTION 13: Disposal considerations

Dispose of in compliance with Federal, state and local government regulations.
Usually considered an inert packaging material that can be recycled or landfilled.
Incineration is not a preferred disposal method because of the possible formation of hydrogen fluoride.

SECTION 14: Transport information

Hazard Class	not regulated
UN Number	not applicable, none assigned
Packing Group	-

SECTION 15: Regulatory information

European Labeling in Accordance with EC Directive

Hazard Symbols	-
Risk Phrases	-
Safety Phrases	15: Keep away from heat. 20/21: When using, do not eat, drink or smoke.

SECTION 16: Other information

TSCA Chemical Inventory	listed
Canadian DSL Inventory	listed
Australian Inventory	listed
Korea Inventory of Chemicals	Korean Gazette Number: KE-33429
Philippine Inventory (PICCS)	listed
Japan (ENCS)	(6)-939
EINECS Number	listed by the monomer
China Inventory	listed

"Guide to the safe handling of Fluoropolymer resins, 3rd edition"
Published by the Fluoropolymers Division of The Society of the Plastics Industry, Inc.

This product is not designed, manufactured, or intended for medical uses, including implantation to the body or other applications in direct contact with body fluids or tissues.
Do not use for non-industrial applications.

The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. The information does not relate to use in combination with any other material or in any process.

DAIKIN INDUSTRIES, LTD.CHEMICAL DIVISION: TOXICOLOGY & REGULATORY AFFEARS
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