Material Safety Data Sheet

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Section1: Chemical Product / Company Identification

Trade name **NEOFLON $_{TM}$ ETFE EP-AS**
Grade EP-610AS
Synonym Ethylene-Tetrafluoroethylene Copolymer (ETFE)

Company identification
Manufacturer DAIKIN INDUSTRIES,LTD.CHEMICAL DIVISION:
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Section 2: Composition / information on ingredients

Component	mass %	CAS No.	Symbol	R-phrases
ETFE	80-95	94228-79-2	-	-
Carbon black	5-15	1333-86-4	-	-

Section 3: Hazard identification

EMERGENCY OVERVIEW

Skin Burns from contact with molten material. Signs/symptoms may include burning pain, red and swollen skin, and blisters.

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 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	-

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 several 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, CO2, halogenated compounds(ew. HF, COF2, 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.

SECTION 7: Handling and storage

Handling	Close containers after each use. 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 curing. 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

Carbon black	TLV: ppm; 3.5 mg/m3 (ACGIH 1994-1995)
HF	TLV: (as F): 3ppm; (ceiling values)(ACGIH 1999) MAK: 3ppm; 2.5mg/m3, BAT 7mg/g creatinine (1999) MAK as STEL: 6ppm, 5mg/m3 (1999)
COF2	TLV: 2ppm; 5.4mg/m3 (as TWA); 5ppm; 13mg/m3 (as STEL) (ACGIH 1997)
PFIB	TLV: 0.01ppm; 0.082 mg/m3 (ceiling values) (ACGIH 1993-1994).

SECTION 9: Physical and chemical properties

Physical State	pellet
Appearance	Black
Odor	no
Melting point	210-230 °C
Apparent dencity	1.8-1.9 (H2O=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
Decomposition Products	Carbon monoxide, carbon dioxide, HF, COF2 and PFIB

SECTION 11: Toxicological information

(Carbon Black)
CARCINOGENICITY Carbon Black is listed as Group 2B chemical by IARC
(Group 2B is classifiable to human as carcinogenic chemical.)
(IARC : International Agency Research on Cancer in Paris.)

When heated for a long time, a very small quantity of hydrogen fluoride (HF), carbonyl fluoride(COF2) 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 COF2)
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

TSCA Chemical Inventory	listed: P89-852
Canadian DSL Inventory	no
Australian Inventory	no
Korea Inventory of Chemicals	no
Philippine Inventory (PICCS)	no
Japan(ENCS)	6-1939
ELINCS Number	listed:confidential

European Labeling in Accordance with EC Directives

Hazard Symbols	none
Risk Phrases	none
Safety Phrases	none

SECTION 16: Other information

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