Material Safety Data Sheet

Issued May-28-1991 Revised (4.4) May-08-2006

Section1: Identification of the substance and manufacturer

Trade name	**DAI-EL G-603, G-621, G-671** : Semi-compound (curing agent and curing accelerator are added)
Synonym	1-Propene, 1,1,2,3,3,3-hexafluoro-polymer with 1,1-difluoroethene and tetrafluoroethene Fluoroelastomer
Application	Seal material, O-ring with chemical and heat resistance

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 DAIKIN CHEMICAL NETHERLANDS B.V.: Maaskade 16, 5347 KD Oss, The Netherlands Phone: (+31) 412-697580 FAX: (+31) 412-697589
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 Contacts

North America: +1-256-306-5000

Japan: +81-6-373-4349 Europe: +49-211-179225-0

Section 2: Composition / information on ingredients

Component	CAS RN	mass %	EINECS	Symbol	R-phrases
Fluoroelastomer	25190-89-0	confidential	not available	n.ap	n.ap
DBU-B	49663-94-7	confidential	2564196	n.ap	n.ap
Bis phenol AF	1478-61-1	confidential	2160367	Xi	R41

Section 3: Hazard identification

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

Danger! 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.

HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon Monoxide and Carbon Dioxide, Hydrogen Fluoride (HF), Perfluoroisobutylene (PFIB), Carbonyl Fluoride (COF_2), Toxic Vapors, Gases or Particulates.

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	Powder, alcohol-resistant foam, carbon dioxide.
Flash Point	none
Autoignition Temp	no data
Explosion Limits	Lower: none Upper: none
Combustion products	These products are harmful CO, CO_2, halogenated compounds. WARNING: TOXIC FLUORINE COMPOUNDS EVOLVED IN FIRE.

SECTION 6: Accidental release measures

Collect spilled material and separate from other waste. Use proper personal protective equipment as indicated in Section 8.

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.

Keep containers tightly closed when not in use.

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.

Exposure Limits

HF	TLV (as F): 0.5 ppm as TWA, 2 ppm as STEL; Ceiling (skin) (ACGIH 2005) 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).

Personal Protective Equipment

Wear safety glasses with side shields.

Wear appropriate gloves, when handling this material to prevent thermal burns.

Wear protective clothing and boots as required.

If thermal decomposition occurs:

Mask for acidic gases must be used to avoid inhalation of the product.

SECTION 9: Physical and chemical properties

Appearance	White to light yellow
Dimension	Sheet (350x400x50)
Odor	No
Boiling point	Not applicable
Melting point	Not applicable
Specific gravity	1.85 (H_2O=1 at 25 C)
Vapor pressure	Not applicable
Viscosity	Not applicable
Solubility in water	Insoluble
Solubility	Soluble in ketones, esters, ethers and perfluoroalkanes

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, such as aluminum and magnesium.
Hazardous 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

SECTION 15: Regulatory information

NFPA-HMIS RATINGS (SCALE 0-4): HEALTH=1, FIRE=1, REACTIVITY=0

European Labeling in Accordance with EC Directives

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	Except for DBU-B. DAIKIN America Inc. submitted LVE.
Korea Inventory of chemicals	All components are listed
Japan (ENCS)	All components are listed

ICSC: International Chemical Safety Cards

	ICSC; #	RTECS#	EC No
Hydroquinone	0166	MX3500000	604-005-00-4
Hydrogen fluoride	0283	MW7875000	009-002-00-6
Carbonyl fluoride	0633	FG6125000	
Perfluoroisobutylene	1216	UD1800000	

Safety Data Sheet according to EC Directive 93/112

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:
homepage: http://www.daikin.co.jp/chm/