Material Safety Data Sheet

Issued December 5, 2017

Section1: Identification of the substance and manufacturer

Trade name: **DAI-EL G-EXP-045, G-EXP-046, G-EXP-057, G-EXP-058, G-EXP-062, G-EXP-065, G-EXP-071**

Synonym: Terpolymer of 1,1-difluoroethene, 1,1,2,3,3,3-Hexafluoro-1-propene and tetrafluoroethylene

Feature and Application: Elastomer, heat and chemical resistant, for o-rings, seals and hose

Company identification:

Manufacturer: Cri-Tech, Inc., 85 Winter Street, Hanover, MA 02339
Tel: 800-826-5699

Supplier in US: DAIKIN AMERICA, INC.
20 Olympic Drive, Orangeburg, New York 10962
Product Information: + 1-800-365-9570

PRODUCT INFO: 1-800-365-9570 - 9 am to 5 pm Eastern Standard Time

Emergency telephone contact: North America: +1-256-306-5000

Section 2: Composition / information on ingredients

Component	CAS RN	mass %	EINECS Symbol	R-phrases
$(C_3F_6)x$, $(C_2H_2F_2)y$, $(C_2F_4)z$	25190-89-0	90 – 99	N/A	N/A
Bisphenol AF	1478-61-1	1 – 10	Xi	R36

Section 3: Hazard identification

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

Potential Health Effects:

Inhalation: Vapors and fumes liberated during hot processing with this material may cause flulike 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: Eye contact with uncured polymer may cause irritation with discomfort, tearing, or blurring of vision.

Skin: Skin contact with uncured polymer may cause skin irritation with discomfort or rash.

Ingestion: Swallowing larger than that may cause injury.

Chronic –

Section 4: First aid measures

Inhalation: If decomposed gas is inhaled, fresh air, rest. Refer for medical attention.

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.

Section 4: First aid measures (continued)

Eye Contact:	First rinse with plenty of water for at least 15 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

Use proper personal protective equipment as indicated in Section 8.
Use in well ventilated areas.
Avoid contact with eyes and skin and breathing of particles.
Wash hands thoroughly, after handling.
Wash clothing after use.
Do not store or consume food, drink, or tobacco in areas where they may become contaminated with this material.
Follow safe industrial hygiene practices and wear proper protective equipment when handling this Compound

STORAGE

Do not store with flammable materials, such as solvents or oils.
Do not allow material to be exposed to excessive heat.
Keep material away from sparks and flames.

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).
CH_3I	TLV: 2 ppm; 12 mg/m^3 as TWA (skin) (ACGIH 1998).

SECTION 8: Exposure controls / personal protection (continued)

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.
Where a cartridge/canister respirator is suitable use: ABE~.

If thermal decomposition occurs:

Mask for acidic gases must be used to avoid inhalation of the product.
Wear full personal protective equipment including suitable respiratory protective equipment. Where a cartridge/canister respirator is suitable use: Type P3 CEN143.

SECTION 9: Physical and chemical properties

Physical State	Solid
Appearance	White to Yellow
Odor	no
Boiling point	N/A
Melting point	N/A
Specific gravity	1.81 (25 C)
Flashpoint	None
Flammable Limits	No Data
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 and CH_3I

SECTION 11: Toxicological information

When compound is heated for a long time, very small quantities of hydrogen fluoride (HF), carbonyl fluoride (COF_2) and perfluoroisobutylene (PFIB) are generated. Higher temperatures will cause more of these substances to be released.

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

Shipping Name:	None
Hazard Class:	Not regulated
Label(s):	None
UN/NA Number:	None
lATA:	Not regulated by lATA
IMO IMDG-code:	Not regulated for ocean transportation

SECTION 15: Regulatory information

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

European Labeling in Accordance with EC Directives

Hazard Symbols	None
Risk Phrases	None
Safety Phrases	15: Keep away from heat. 20/21: When using, do not eat, drink or smoke.
SARA Title III	Section 311-312 Hazard Categories: Immediate: [Yes] Delayed: [No] Fire: [No] Reactivity: [No] Release of pressure: [No]
TSCA Chemical Inventory	All components are listed.
Canada DSL	All components are listed.
Australian Inventory	All components are listed.
Korea Inventory	All components are listed.
Philippine Inventory	All components are listed.
Japan ENCS	All components are listed.
EINECS Number	All components are listed

SECTION 16: Other information

ICSC: International Chemical Safety Cards

	ICSC; #	RTECS#	EC No
Hydrogen fluoride	0283	MW7875000	009-002-00-6
Carbonyl fluoride	0633	FG6125000	
Perfluoroisobutylene	1216	UD1800000	
Methyl Iodide	0509	PA9450000	602-005-00-9

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/