4,4'-(Hexafluoroisopropylidene)diphenol

sc-262203

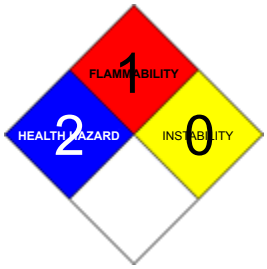
Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
4,4'-(Hexafluoroisopropylidene)diphenol

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA


SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C15-H10-F6-O2, (CF3)2-C-(C6H4OH)2, "fluorinated bisphenol A", "hexafluoro bisphenol A", "4, 4' -(hexafluoroisopropylidene)diphenol", "2, 2-bis(4-hydroxyphenyl)hexafluoropropane", "phenol, 4, 4' -[2, 2, 2-trifluoro-1-(trifluoromethyl)ethylidene]bis-", "4, 4' -[2, 2, 2-trifluoro-1-(trifluoromethyl)ethylidene]bis(phenol)", "phenol, 4, 4' -[bis[trifluoromethyl)methylidene]di-"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability	1		
Toxicity	2		
Body Contact	2		
Reactivity	1		
Chronic	2		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW

RISK

Irritating to eyes, respiratory system and skin.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion".
This is because of the lack of corroborating animal or human evidence.

EYE

■ This material can cause eye irritation and damage in some persons.

SKIN

■ This material can cause inflammation of the skin oncontact in some persons.
■ The material may accentuate any pre-existing dermatitis condition.
■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material can cause respiratory irritation in some persons.
The body's response to such irritation can cause further lung damage.
■ Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
■ Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.
Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
Based on experience with similar materials, there is a possibility that exposure to the material may reduce fertility in humans at levels which do not cause other toxic effects.
Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung. Prime symptom is breathlessness; lung shadows show on X-ray.
4,4'-dihydroxyphenyl oxide may have effects similar tofemale sex hormones.
Bisphenol A may have effects similar to female sex hormones and when administered to pregnant women, may damage the foetus. It may also damage male reproductive organs and sperm.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
4,4'-(Hexafluoroisopropylidene)diphenol	1478-61-1	>98
contaminants as		
hexafluoroacetone	684-16-2	

Section 4 - FIRST AID MEASURES

SWALLOWED

- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

If this product comes in contact with the eyes

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

NOTES TO PHYSICIAN

■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	> 1.0
Lower Explosive Limit (%)	Not available

EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use water delivered as a fine spray to control fire and cool adjacent area.

When any large container (including road and rail tankers) is involved in a fire,
consider evacuation by 100 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds.; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion.
- In the same way as gases and vapors, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL).are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC)
- A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people.

Combustion products include carbon monoxide (CO), carbon dioxide (CO_2), hydrogen fluoride, other pyrolysis products typical of burning organic material.

NOTE Burns with intense heat. Produces melting, flowing, burning liquid and dense acrid black smoke.

FIRE INCOMPATIBILITY

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.

Environmental hazard - contain spillage.

MAJOR SPILLS

Environmental hazard - contain spillage.
Moderate hazard.

- CAUTION Advise personnel in area.
- Alert Emergency Services and tell them location and nature of hazard.
- Control personal contact by wearing protective clothing.
- Prevent, by any means available, spillage from entering drains or water courses.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorization or permit.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

STORAGE REQUIREMENTS

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.
- Store at room temperature.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US ACGIH Threshold Limit Values (TLV)	bisphenol AF (Fluorides, as F)		2.5						TLV® Basis Bone dam; fluorosis ; BEI
Canada - Prince Edward Island Occupational Exposure Limits	bisphenol AF (Fluorides, as F)		2.5						TLV® Basis Bone dam; fluorosis ; BEI
US - Hawaii Air Contaminant Limits	bisphenol AF (Fluorides (as F))		2.5						(CAS (Varies with compound))
Canada - Ontario Occupational Exposure Limits	bisphenol AF (Particles (Insoluble or Poorly Soluble) Not Otherwise)		10 (I)						

Canada - British Columbia Occupational Exposure Limits	bisphenol AF (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))		10 (N)	
Canada - Ontario Occupational Exposure Limits	bisphenol AF (Specified (PNOS) / Particules (insolubles ou peu solubles) non précisées par ailleurs)		3 (R)	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	bisphenol AF (Particulates not otherwise regulated Respirable fraction)		5	
US - California Permissible Exposure Limits for Chemical Contaminants	bisphenol AF (Particulates not otherwise regulated Respirable fraction)		5	(n)
US - Oregon Permissible Exposure Limits (Z-1)	bisphenol AF (Particulates not otherwise regulated (PNOR) (f) Total Dust)	-	10	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Michigan Exposure Limits for Air Contaminants	bisphenol AF (Particulates not otherwise regulated, Respirable dust)		5	
US - Oregon Permissible Exposure Limits (Z-1)	bisphenol AF (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)	-	5	Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means “particles not otherwise regulated.”
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	bisphenol AF (Particulates not otherwise regulated (PNOR)(f)- Respirable fraction)		5	

Canada - Alberta Occupational Exposure Limits	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				
Canada - British Columbia Occupational Exposure Limits	hexafluoroacetone (Hexafluoroacetone)	0.1					Skin; R
US NIOSH Recommended Exposure Limits (RELs)	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				[skin]
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	hexafluoroacetone (Hexafluoroacetone)	0.1	0.68				
US ACGIH Threshold Limit Values (TLV)	hexafluoroacetone (Hexafluoroacetone)	0.1					TLV® Basis Testicular dam; kidney dam
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				
US - Minnesota Permissible Exposure Limits (PELs)	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				
US - California Permissible Exposure Limits for Chemical Contaminants	hexafluoroacetone (Hexafluoroacetone; 1,1,1,3,3,3-hexafluoro-2-propanone)	0.1	0.7				
US - Hawaii Air Contaminant Limits	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7	0.3	2		
US - Alaska Limits for Air Contaminants	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7				
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	hexafluoroacetone (Hexafluoroacetone)	0.1		0.3			Skin

Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7	0.3	2.1	
US - Washington Permissible exposure limits of air contaminants	hexafluoroacetone (Hexafluoroacetone)	0.1		0.3		
Canada - Nova Scotia Occupational Exposure Limits	hexafluoroacetone (Hexafluoroacetone)	0.1				TLV Basis testicular & kidney damage
Canada - Prince Edward Island Occupational Exposure Limits	hexafluoroacetone (Hexafluoroacetone)	0.1				TLV® Basis Testicular dam; kidney dam
Canada - Northwest Territories Occupational Exposure Limits (English)	hexafluoroacetone (Hexafluoroacetone)	0.1	0.68	0.3	2	
US - Michigan Exposure Limits for Air Contaminants	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7			
US - Oregon Permissible Exposure Limits (Z-1)	hexafluoroacetone (Hexafluoroacetone)	0.1	0.7			Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.

PERSONAL PROTECTION

RESPIRATOR

- Type AX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

EYE

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or

irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

HANDS/FEET

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.

- polychloroprene
- nitrile rubber
- butyl rubber
- fluorocaoutchouc

OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Solid.
Does not mix with water.
Sinks in water.

State	Divided solid	Molecular Weight	336.23
Melting Range (°F)	322- 325	Viscosity	Not Available
Boiling Range (°F)	Not available	Solubility in water (g/L)	Immiscible
Flash Point (°F)	>212	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHG)	Negligible
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	> 1.0
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Nil @ 38C	Evaporation Rate	Not Applicable

APPEARANCE

Powder; insoluble in water (<2%). Mild odor.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerization will not occur.

STORAGE INCOMPATIBILITY

- Avoid reaction with oxidizing agents

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

bisphenol AF

TOXICITY AND IRRITATION

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.

CARCINOGEN

Fluorides, as F	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A4
bisphenol AF	US - Maine Chemicals of High Concern List	Carcinogen	A4
bisphenol AF	Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens	Notes	TLV® Basis Bone dam; fluorosis ; BEI
hexafluoroacetone	US - Rhode Island Hazardous Substance List	IARC	
hexafluoroacetone	US - Maine Chemicals of High Concern List	Carcinogen	A4
hexafluoroacetone	US - Maine Chemicals of High Concern List	Carcinogen	
hexafluoroacetone	Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens	Notes	TLV® Basis Bone dam; fluorosis ; BEI

REPROTOXIN

hexafluoroacetone	US - California Proposition 65 - Reproductive Toxicity	NSRL or MADL (µg/day)

SKIN

hexafluoroacetone	US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants - Skin	Skin Designation	X
hexafluoroacetone	US - Washington Permissible exposure limits of air contaminants - Skin	Skin	X
hexafluoroacetone	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	X
hexafluoroacetone	US ACGIH Threshold Limit Values (TLV) - Skin	Skin Designation	Yes
hexafluoroacetone	US AIHA Workplace Environmental Exposure Levels (WEELs) - Skin	Notes	TLV® Basis Testicular dam; kidney dam
hexafluoroacetone	US NIOSH Recommended Exposure Limits (RELs) - Skin	Skin	Yes
hexafluoroacetone	US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) - Skin	Skin	X
hexafluoroacetone	US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs) - Skin	Skin	X
hexafluoroacetone	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	X
hexafluoroacetone	US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants - Skin	Skin Designation	Yes
hexafluoroacetone	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin; R
hexafluoroacetone	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	X
hexafluoroacetone	US - Minnesota Permissible Exposure Limits (PELs) - Skin	Skin Designation	Yes

hexafluoroacetone	US - Hawaii Air Contaminant Limits - Skin Designation	Skin Designation	X
hexafluoroacetone	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	X
hexafluoroacetone	US OSHA Permissible Exposure Levels (PELs) - Skin	Skin Designation	Yes
hexafluoroacetone	US - Oregon Permissible Exposure Limits (Z2) - Skin	Skin	X
hexafluoroacetone	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	X
hexafluoroacetone	US - California Permissible Exposure Limits for Chemical Contaminants - Skin	Skin	S
hexafluoroacetone	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment.
Refer to special instructions/ safety data sheets.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
hexafluoroacetone	HIGH	No Data Available	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material)
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols:	G	Hazard class or Division:	9
Identification Numbers:	UN3077	PG:	III
Label Codes:	9	Special provisions:	8, 146, 335, B54, IB8, IP3, N20, T1, TP33
Packaging: Exceptions:	155	Packaging: Non-bulk:	213
Packaging: Exceptions:	155	Quantity limitations: Passenger aircraft/rail:	No limit
Quantity Limitations: Cargo aircraft only:	No limit	Vessel stowage: Location:	A
Vessel stowage: Other:	None		

Hazardous materials descriptions and proper shipping names:
Environmentally hazardous substance, solid, n.o.s

Air Transport IATA:

ICAO/IATA Class:	9	ICAO/IATA Subrisk:	None
UN/ID Number:	3077	Packing Group:	III
Special provisions:	A97		
Cargo Only			
Packing Instructions:	956	Maximum Qty/Pack:	400 kg
Passenger and Cargo		Passenger and Cargo	
Packing Instructions:	956	Maximum Qty/Pack:	400 kg
Passenger and Cargo Limited Quantity		Passenger and Cargo Limited Quantity	
Packing Instructions:	Y956	Maximum Qty/Pack:	30 kg G

Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains bisphenol AF)

Maritime Transport IMDG:

IMDG Class:	9	IMDG Subrisk:	None
UN Number:	3077	Packing Group:	III
EMS Number:	F-A,S-F	Special provisions:	274 335
Limited Quantities:	5 kg	Marine Pollutant:	Yes

Shipping name:ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.(contains bisphenol AF)

Section 15 - REGULATORY INFORMATION

bisphenol AF (CAS: 1478-61-1) is found on the following regulatory lists;
"Canada CEPA Environmental Registry Substance Lists - List of substances on the DSL that meet the ecological criteria for categorization (English)","Canada Domestic Substances List (DSL)","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

Regulations for ingredients
hexafluoroacetone (CAS: 684-16-2,13098-39-0,34202-69-2,677-71-4,32836-39-8,10057-27-9) is found on the following regulatory lists;
"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Yukon Permissible Concentrations for

Airborne Contaminant Substances","Canada Ingredient Disclosure List (SOR/88-64)","Canada Non-Domestic Substances List (NDSL)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","US - Alaska Limits for Air Contaminants","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - Reproductive Toxicity","US - Connecticut Hazardous Air Pollutants","US - Delaware Pollutant Discharge Requirements - Reportable Quantities","US - Hawaii Air Contaminant Limits","US - Maine Chemicals of High Concern List","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Oregon Hazardous Materials","US - Oregon Permissible Exposure Limits (Z-1)","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Permissible exposure limits of air contaminants","US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives","US ACGIH Threshold Limit Values (TLV)","US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest","US DOE Temporary Emergency Exposure Limits (TEELs)","US EPA Acute Exposure Guideline Levels (AEGLs) - Interim","US NFPA 45 Fire Protection for Laboratories Using Chemicals - Flammability Characteristics of Common Compressed and Liquefied Gases","US NIOSH Recommended Exposure Limits (RELs)","US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory","USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Skin contact may produce health damage*.
■ Cumulative effects may result following exposure*.
■ May possibly affect fertility*.
* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes
bisphenol AF	1478- 61- 1	N; R50/53
hexafluoroacetone	684- 16- 2	T; R25 Xi; R38
hexafluoroacetone	13098- 39- 0	N; R50/53
hexafluoroacetone	34202- 69- 2	N; R50/53
hexafluoroacetone	677- 71- 4	N; R50/53
hexafluoroacetone	32836- 39- 8	N; R50/53
hexafluoroacetone	10057- 27- 9	N; R50/53

Ingredients with multiple CAS Nos

Ingredient Name	CAS
hexafluoroacetone	684-16-2, 13098-39-0, 34202-69-2, 677-71-4, 32836-39-8, 10057-27-9

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

■ For detailed advice on Personal Protective Equipment, refer to the following U.S. Regulations and Standards:
OSHA Standards - 29 CFR:
1910.132 - Personal Protective Equipment - General requirements
1910.133 - Eye and face protection
1910.134 - Respiratory Protection
1910.136 - Occupational foot protection
1910.138 - Hand Protection
Eye and face protection - ANSI Z87.1
Foot protection - ANSI Z41
Respirators must be NIOSH approved.

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