

SECTION 1: Identification

Product Identifier

Tradename	TC- 43
CAS Number	86508-42-1

Recommended use of the chemical and restrictions on use

Heat conduction of machinery and equipment, electronics cooling and cooling of datacenter equipment

Details of the supplier of the safety data sheet

Supplier	Tyrell Chemical LLC
	1 Alhambra Plaza PH Floor Coral
	Gables FL 33134
Phone Number:	+1-786-633-0019

Emergency Telephone Number

Emergency Telephone Number	+1-786-633-0019
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SECTION 2: Hazard(s) Identification

Classification of the substance or mixture

Classifications according to OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Irrit. 2	H315	<i>Causes Skin Irritation</i>
Eye Irrit. 2A	H319	<i>Causes Serious Eye Irritation</i>
STOT SE 3	H335	<i>May Cause Respiratory Irritation</i>



GHS07

Information concerning particular hazards for human and environment

The product has to be labelled due to the calculation procedure of OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification system

The classification is according to the latest edition of OSHA Hazard Communication Standard (29 CFR 1910.1200), and extended by company and literature data.

- Label Elements
- Labelling according to OSHA Hazard Communication Standard (29 CFR 1910.1200)
- Hazard Pictograms

Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US)



GHS07

Signal word *Warning*

Hazard-determining components of labelling

PERFLOURO COMPOUNDS, CS-18

Hazard Statements (GHS-US)

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statements (GHS-US)

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves / eye protection / face protection.
P302+P352	If on skin: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a poison center or doctor if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P362+P364	Take off contaminated clothing and wash it before reuse.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Dispose of contents/container in an approved waste disposal plant

Hazards not otherwise classified (HNOC) *No further relevant information available.*

Unknown acute toxicity (GHS US) *Not applicable*

Hazards not otherwise classified (HNOC) Notclassified as hazardousaccording to OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Signal word Not applicable

Symbols Not applicable

Pictograms Not applicable

Unknown acute toxicity (GHS US) *Not applicable*



NFPA Health Hazard Classification

Health: 3

Flammability: 1

Instability: 0

Special Hazards: None

The NFPA Health code of 3 is due to emergency situations where the material may thermally decompose and release Hydrogen Fluoride and Perfluoroisobutylene (PFIB). During normal use conditions please reference section 2 and section 11 for additional health hazard information

HMIS III Rating

Health 0 Minimal Hazard – No significant risk to health

Flammability 1 material must be preheated before ignition will occur. Includes liquids, solids, and semi-solids having a flash point above 200 °F (93 °C)

Physical 0 Minimal Hazard – Materials that are normally stable, even under fire conditions, and will NOT reach with water, polymerize, decompose, condense, or self-react. Non-Explosives

SECTION 3: Composition/information on ingredients

Substance

CAS No.	Description	% by Wt.
86508-42-1	PERFLOURO COMPOUNDS, CS-18	100

Description of first aid measures

General description

No need for first aid is anticipated

After Inhalation

No need for first aid is anticipated

After skin contact

No need for first aid is anticipated

After eye contact

No need for first aid is anticipated

After ingestion

No need for first aid is anticipated Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. See section 11.1, information of toxicological effects

Indication of any immediate medical attention and special treatment needed

Not applicable

SECTION 5: Fire-fighting measures

Extinguishing Media

Suitable extinguishing agents The product is nonflammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or waterfog. Use fire fighting measures that suit the environment.

Special hazards arising from the substance or mixture

Fire hazard Thermal decomposition generates: Carbon oxides, hydrogen fluoride
Explosion hazard Risk of explosion if heated under confinement due to excessive pressure buildup.
Use waterspray or fog for cooling exposed containers

Special protective equipment and precautions for firefighters

Firefighting instructions Avoid breathing fire gases or vapors. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not been ignored use water spray to disperse vapors and protect personnel stopping the leak.

Protective equipment Wear gas tight chemically protective clothing in combination with self-contained breathing apparatus (SCBA) and appropriate clothing including helmets, protective boots, and gloves will provide a basic level of protection of chemical incidents. For further information refer to section 8: exposure controls/personal protection.

SECTION 6: Accidental Release Measures

Personal Precautions, protective equipment and emergency procedures

General Measures Evacuate unnecessary personnel. Ensure adequate air ventilation.
Do not breathe gas, fumes, vapor, or spray.

For non-emergency personnel
Emergency procedures Only qualified personnel equipped with suitable protective equipment may intervene

For Emergency Responders

Protective Equipment Do not attempt to take action without suitable equipment. For further information refer to section 8 "Exposure controls/personal protection"

Emergency Procedures Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Environmental Precautions

Dilute with plenty of water. Do not allow to enter sewers / surface or ground water. Notify authorities if product enters sewers or public waters.

Methods and material for containment and cleaning up

For containment Stop leak if safe to do so. Dike up recovery or absorb with appropriate material.

Methods for cleaning up Take up large spills with pump or vacuum and finish with dry chemical absorbent.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Sweep or shovel spills into appropriate container for disposal. Ventilate area.

Other information Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation

SECTION 7: Handling and Storage

Precautions for safe handling

Wear protective clothing as described in section 8 of this safety data sheet. Keep away from food, drink, and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists.
Ensure good ventilation/exhaustion at the workplace. Prevent formation of aerosols.

For the general occupational hygienic measures refer to Section 8.

Information about protection against explosions and fires No special measures required.

Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles No special requirements.

Information about storage in one common storage facility Not required.

Further information about storage conditions Keep receptacle tightly sealed. Store in a cool, dry, well-ventilated location. It should be stored separately away from oxidants and edible chemicals, and should not be mixed. Keep container sealed. See section 10 for forbidden substances.

Section 8: Exposure controls/personal protection

Exposure Controls

Components that limit values that require monitoring at the workplace Not required

Based on the composition shown in section 3, the following measures are suggested for occupational safety measure.

Appropriate engineering controls

Ensure good ventilation of the workstation. Emergency eyewash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Keep away from foodstuffs, beverages, and feedstuffs.

Immediately remove all soiled and contaminated clothing. Avoid contact with eyes and skin.

No specific ventilation requirements

See Section 7 for information about the design of technical facilities.

Personal protective equipment

Protection for hands

Protective gloves 29 CFR 1910.138 Hand Protection

Eye protection

Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and face protection

Hygiene Measures

Wash hands thoroughly after handling. Wash at the end of each work shift and before eating, smoking, or using the toilet. Do not eat, drink, or smoke when using this product.

Respiratory Protection

No specific recommendations. Provide adequate ventilation. Large spills: If ventilation is inadequate, suitable respiratory protection must be worn. In case of inadequate ventilation wear respiratory protection. In case of intensive or longer exposure use respiratory device that is independent of circulating air.

Skin and body protection

Wear suitable protective clothing

Other information

Safety Shoes 29 CFR 1910.136: Foot Protection

SECTION 9: Physical and Chemical Properties

General Information

Change in condition

Melting Point / Freezing Point	<-90 °C (<-130 °F)
Initial boiling point and boiling range	160-165 °C (320-329 °F)
Flash point:	None
Flammability (solid, gaseous)	None
Auto-ignition temperature	None
Decomposition temperature	No data available
Explosion Limits	
Lower	None
Upper	None

Vapor Pressure	3.756 kPa @ 25°C
Density	1.803 g/cm ³
Specific Heat	1.509J/g °C
Surface Tension	16.98 mN/m
Solubility in / miscibility with water	< 10 ppm
Partition coefficient (n-octanol/water)	Not available
Kinematic Viscosity	3.05 cSt
Dielectric Constant	3.82
Dielectric Loss (10Mhz)	0.04
Dielectric Strength	40kV by 2.5mm distance
Electrical Resistivity	>= 2* 10 ¹⁵ Ω mm

SECTION 10: Stability and reactivity

Reactivity	This product may be reactive with certain agents under certain conditions. See the remaining headings in this section.
Stability	Stable at normal ambient temperature and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	
	Hazardous polymerization will not occur
Conditions to avoid	Heat
Materials to avoid	Powdered metal, finely divided active metals Alkali and alkaline earth metals.
Hazardous decomposition	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances at elevated temperatures greater than 200 °C: Hydrogen fluoride (HF). Peflouroisobutylene (PFIB)

If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and Peflouroisobutylene can occur.

SECTION 11: Toxicological Information

Acute toxicity

Skin corrosion/irritation

Contact with the skin is not expected to result in significant irritation

Serious Eye damage/irritation

Contact with the eyes is not expected to result in significant irritation

Respiratory or skin sensitization

No known health effects

Ingestion

No known health effects

LD/LC50 values that are relevant for classification

Acute Oral

LD50 = 5840mg/kg

Acute Inhalation toxicity

LC50 = 22174.07 mg/m³

Acute percutaneous

LD50 > 2000 mg / kg

Target Organ(s)

Specific Target Organ Toxicity – Single Exposure

For the product, either no data is currently available or the data is not sufficient for classification

Aspiration Hazard

No classified

Additional toxicological information

Carcinogenic categories

IARC (International Agency for Research on Cancer)

Substance is not listed

NTP (National Toxicology Program)

Substance is not listed

OSHA-CA (occupational safety and Health administration)

Substance is not listed

General Information No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

SECTION 12: Ecological Information

Toxicity

Aquatic toxicity

No further relevant information available.

Persistence and degradability

No further relevant information available.

Bio accumulative potential

No further relevant information available.

Mobility in soil

No further relevant information available.

Other adverse effects

No further relevant information available.

Ecotoxicity

No data available. However, large or frequent spills may have hazardous effects on the environment.

SECTION 13: Disposal Consideration

Waste treatment methods

General Information

The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packages

Recommendation

Disposal must be made according to official regulations in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during

incineration process. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty drums/barrels/containers used for transporting and handling hazardous chemicals shall be considered, stored, treated and disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the regulating authorities to determine the available treatment and disposal facilities.

Recommended cleansing agent

Water, if necessary with cleansing agents

SECTION 14: Transport Information

General	The product is not covered by international regulations on the transport of dangerous goods (IDMG, IATA, U.S. DOT, or IMO)
UN-Number	
DOT, IDMG, IATA	Not applicable
UN proper shipping name	
DOT, IDMG, IATA	Not applicable
Transport Hazard class(es)	
Class	Not applicable
Label	-
Packaging Group	
DOT, IDMG, IATA	Not applicable
Environmental hazards	
Marine Pollutant	No
Special precautions for user	Not applicable
Transportation in bulk according to Annex II of MARPOL73/78 and the IBC code: Not applicable	
UN "Model Regulation"	Not applicable

Transportation Notes

Should be protected against exposure to high temperatures during transportation.

When transporting by road follow the prescribed route and do not stay in residential areas and densely populated areas.

Transport vehicles should be equipped with the appropriate variety and quantity of firefighting equipment and leakage emergency treatment equipment.

Do not transport with oxidants and food chemicals.

Do not use mechanical equipment and tools prone to sparks

SECTION 15: Regulatory information

US Federal Regulations

TSCA (Toxic Substances Control Act) Listed on the United States TSCA inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR 372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372

International Regulations

CANADA

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National Regulations

Listed on AICS (Australian Inventory of Chemical Substances)

Listed on the IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Korean ECL (Existing Chemicals List)

Listed on the NZIoC (New Zealand Inventory of Chemicals)

Listed on the PICCS (Philippines Inventory of Chemicals and Chemical Substances)

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Chemicals known to cause cancer

Substance is not listed

Chemicals known to cause reproductive toxicity for female

Substance is not listed

Chemicals known to cause reproductive toxicity for males

Substance is not listed

Chemicals known to cause developmental toxicity

Substance is not listed

Massachusetts Right-To-Know List

Substance is not listed

Minnesota Right-To-Know List

Substance is not listed

New Jersey Right-To-Know List:

Substance is not listed

New Jersey Special Hazardous Substance List

Substance is not listed

Pennsylvania Right-To-Know List

Substance is not listed

Pennsylvania Special Hazardous Substance List

Substance is not listed

Rhode Island Right to Know list

Substance is not listed

Cancerogenity Categories

EPA (Environmental Protection Agency)

Substance is not listed

TLV (Threshold Limit Value established by ACGIH)

Substance is not listed

NIOSH-ca (National Institute for Occupational Safety and Health)

Substance is not listed

SECTION 16: Other Information:

The contents and format of this SDS are in accordance with 29 CFR 1910.1200

Training Advice

Only trained personnel should use this material

Issued by

Tyrell Chemical LLC

Date of Preparation / last revision

2025-04-16

Supersedes Date

2025-03-15

Revision

5

SDS status

Approved

Abbreviations and acronyms:

ACGIH:	American Conference of Governmental Industrial Hygienists AICS:
	Australian Inventory of Chemical Substances
CAS:	Chemical Abstracts Services (Division of the American Chemical Society)
CERCLA:	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 DOT:
	US Department of Transportation
DSL	Domestic Substances List
ECL:	Existing Chemicals List
EPA:	Environmental Protection Agency
Eye Irrit. 2a:	Serious Eye damage/eye irritation – Category 2A
IECSC:	Inventory of Existing Chemical Substances Produced or Imported in China IMDG:
	International Maritime Code for Dangerous Goods
IATA:	International Air Transport Association
LC50:	Lethal Concentration, 50 percent
LD50:	Lethal Dose, 50 percent
NIOSH:	National Institute for Occupational Safety
NZIoC:	New Zealand Inventory of Chemicals
OSHA:	Occupational Safety and Health
PICCS:	Philippines Inventory of Chemicals and Chemical Substances SARA:
	Superfund Amendments and Reauthorization Act
Skin Irrit. 2:	Skin corrosion/irritation – Category 2
STOT SE 3:	Specific target organ toxicity (single exposure) – Category 3 TLV:
	Threshold Limit Value

DISCLAIMER OF LIABILITY

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