

### SECTION 1: Identification

#### 1.1. Identification

|                               |                                   |
|-------------------------------|-----------------------------------|
| Product form                  | : Substance                       |
| Substance name                | : 1-Chloroheptafluorocyclopentene |
| CAS-No.                       | : 1759-63-3                       |
| Product code                  | : 1400-6-06                       |
| Formula                       | : C5ClF7                          |
| Other means of identification | : MFCD19442032                    |

#### 1.2. Recommended use and restrictions on use

|                              |  |
|------------------------------|--|
| Use of the substance/mixture | : Laboratory chemicals<br>Manufacture of substances<br>Scientific research and development |
|------------------------------|--|

#### 1.3. Supplier

SynQuest Laboratories, Inc. Inc.  
 P.O. Box 309  
 Alachua, FL, Alachua, 32615  
 United States of America  
 T (386) 462-0788 - F (386) 462-7097  
[info@synquestlabs.com](mailto:info@synquestlabs.com) - [www.synquestlabs.com](http://www.synquestlabs.com)

#### 1.4. Emergency telephone number

|                  |   |
|------------------|---|
| Emergency number | : (844) 523-4086 (3E Company - Account 10069) |
|------------------|---|

### SECTION 2: Hazard(s) identification


#### 2.1. Classification of the substance or mixture

##### GHS US classification

|   |      |                                  |
|---|------|----------------------------------|
| Acute toxicity (oral) Category 3  | H301 | Toxic if swallowed               |
| Acute toxicity (dermal) Category 3  | H311 | Toxic in contact with skin       |
| Acute toxicity (inhalation) Category 3  | H331 | Toxic if inhaled                 |
| Skin corrosion/irritation Category 2  | H315 | Causes skin irritation           |
| Serious eye damage/eye irritation Category 2A   | H319 | Causes serious eye irritation    |
| Specific target organ toxicity – Single exposure, Category 3,<br>Respiratory tract irritation | H335 | May cause respiratory irritation |
| Full text of H statements : see section 16  |      |                                  |

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

|                            |   |  |
|----------------------------|---|--|
| Hazard pictograms (GHS US) | : |                       |
| Signal word (GHS US)       | : | Danger   |
| Hazard statements (GHS US) | : | H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled<br>H315 - Causes skin irritation |

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Precautionary statements (GHS US)

H319 - Causes serious eye irritation  
H335 - May cause respiratory irritation  
: P261 - Avoid breathing fumes, mist, spray, vapors.  
P264 - Wash skin thoroughly after handling  
P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P310 - If swallowed: Immediately call a poison center or doctor.  
P302+P352 - If on skin: Wash with plenty of soap and 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.  
P311 - Call a POISON CENTER or doctor/physician  
P312 - Call a POISON CENTER or doctor/physician if you feel unwell  
P321 - Specific treatment (see supplemental first aid instructions on this label)  
P322 - Specific treatment (see supplemental first aid instruction on this label)  
P330 - Rinse mouth.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P362+P364 - Take off contaminated clothing and wash it before reuse.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P405 - Store locked up.  
P501 - Dispose of contents/container to an approved waste disposal plant

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

No additional information available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Mono-constituent

| Name  | Product identifier | %     | GHS US classification  |
|---|--------------------|-------|--|
| 1-Chloroheptafluorocyclopentene<br>(Main constituent) | CAS-No.: 1759-63-3 | ≤ 100 | Acute Tox. 3 (Oral), H301<br>Acute Tox. 3 (Dermal), H311<br>Acute Tox. 3 (Inhalation), H331<br>Skin Irrit. 2, H315<br>Eye Irrit. 2A, H319<br>STOT SE 3, H335 |

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

|                                       |   |
|---------------------------------------|---|
| First-aid measures general            | : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Move the affected personnel away from the contaminated area.          |
| First-aid measures after inhalation   | : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Get immediate medical advice/attention.                             |
| First-aid measures after skin contact | : Wash with plenty of soap and water. Get immediate medical advice/attention.   |
| First-aid measures after eye contact  | : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. |
| First-aid measures after ingestion    | : Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth out with water. Get immediate medical advice/attention.                                |

#### 4.2. Most important symptoms and effects (acute and delayed)

|                  |  |
|------------------|--|
| Symptoms/effects | : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11. |
|------------------|--|

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

|                              |  |
|------------------------------|--|
| Suitable extinguishing media | : Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire. |
|------------------------------|--|

#### 5.2. Specific hazards arising from the chemical

|                  |   |
|------------------|---|
| Fire hazard      | : Thermal decomposition generates: Carbon oxides. Hydrogen chloride. Hydrogen fluoride.                 |
| Explosion hazard | : Risk of explosion if heated under confinement. Use water spray or fog for cooling exposed containers. |

#### 5.3. Special protective equipment and precautions for fire-fighters

|                                |  |
|--------------------------------|--|
| Firefighting instructions      | : In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.  |
| Protection during firefighting | : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus. For further information refer to section 8: "Exposure controls/personal protection". |

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

|                  |   |
|------------------|---|
| General measures | : Evacuate unnecessary personnel. Ensure adequate air ventilation. Do not breathe gas, fumes, vapor or spray. |
|------------------|---|

##### 6.1.1. For non-emergency personnel

|                      |   |
|----------------------|---|
| Emergency procedures | : Only qualified personnel equipped with suitable protective equipment may intervene. |
|----------------------|---|

##### 6.1.2. For emergency responders

|                      |   |
|----------------------|---|
| Protective equipment | : Do not attempt to take action without suitable protective 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.   |

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

|                         |   |
|-------------------------|---|
| For containment         | : Stop leak if safe to do so. Dike for recovery or absorb with appropriate material.  |
| Methods for cleaning up | : Take up large spills with pump or vacuum and finish with dry chemical absorbent. Use explosion-proof equipment. Take up small spills with dry chemical absorbent. Sweep or shovel spills into appropriate container for disposal. Ventilate area. |
| Other information       | : For disposal of solid materials or residues refer to section 13 : "Disposal considerations".  |

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

|                               |   |
|-------------------------------|---|
| Precautions for safe handling | : Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe fumes, mist, spray, vapors. Wear personal protective equipment. Avoid contact with skin and eyes. |
| Hygiene measures              | : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.  |

### 7.2. Conditions for safe storage, including any incompatibilities

|                        |  |
|------------------------|--|
| Technical measures     | : Comply with applicable regulations.            |
| Storage conditions     | : Keep container closed when not in use.         |
| Incompatible materials | : Refer to Section 10 on Incompatible Materials. |
| Storage area           | : Store in dry, cool, well-ventilated area.      |

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 1-Chloroheptafluorocyclopentene (1759-63-3)

No additional information available

### 8.2. Appropriate engineering controls

|                                  |   |
|----------------------------------|---|
| Appropriate engineering controls | : Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. |
|----------------------------------|---|

### 8.3. Individual protection measures/Personal protective equipment

|   |
|---|
| <b>Hand protection:</b>   |
| protective gloves. 29 CFR 1910.138: Hand Protection                                       |
| <b>Eye protection:</b>  |
| Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection |
| <b>Skin and body protection:</b>  |
| Wear suitable protective clothing   |

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### Respiratory protection:

In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection

### Personal protective equipment symbol(s):



### Other information:

Safety shoes. 29 CFR 1910.136: Foot Protection.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

|   |                        |
|---|------------------------|
| Physical state                                  | : Liquid               |
| Color   | : No data available    |
| Odor  | : No data available    |
| Odor threshold                                  | : No data available    |
| pH  | : No data available    |
| Melting point                                   | : 56 – 58 °C           |
| Freezing point                                  | : No data available    |
| Boiling point                                   | : No data available    |
| Flash point                                     | : No data available    |
| Relative evaporation rate (butyl acetate=1)     | : No data available    |
| Flammability (solid, gas)                       | : No data available    |
| Vapor pressure                                  | : No data available    |
| Relative vapor density at 20 °C                 | : No data available    |
| Relative density                                | : No data available    |
| Density   | : 1.606 g/ml (@ 20 °C) |
| Molecular mass                                  | : 228.49               |
| Solubility                                      | : No data available    |
| Partition coefficient n-octanol/water (Log Pow) | : No data available    |
| Auto-ignition temperature                       | : No data available    |
| Decomposition temperature                       | : No data available    |
| Viscosity, kinematic                            | : No data available    |
| Viscosity, dynamic                              | : No data available    |
| Explosion limits                                | : No data available    |
| Explosive properties                            | : No data available    |
| Oxidizing properties                            | : No data available    |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

The product is stable at normal handling and storage conditions.

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Keep away from heat, sparks and flame.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

|                                   |  |
|-----------------------------------|--|
| Acute toxicity (oral)             | : Toxic if swallowed.  |
| Acute toxicity (dermal)           | : Toxic in contact with skin.  |
| Acute toxicity (inhalation)       | : Toxic if inhaled.  |
| Skin corrosion/irritation         | : Causes skin irritation.  |
| Serious eye damage/irritation     | : Causes serious eye irritation.   |
| Respiratory or skin sensitization | : Not classified   |
| Germ cell mutagenicity            | : Not classified   |
| Carcinogenicity                   | : Not classified   |
| Reproductive toxicity             | : Not classified   |
| STOT-single exposure              | : May cause respiratory irritation.  |
| STOT-repeated exposure            | : Not classified   |
| Aspiration hazard                 | : Not classified   |
| Viscosity, kinematic              | : No data available  |
| Symptoms/effects                  | : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11. |

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

|  |   |
|--|---|
| Waste treatment methods                    | : Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.   |
| Product/Packaging disposal recommendations | : Dispose of contents/container in accordance with licensed collector's sorting instructions. |
| Additional information                     | : Recycle the material as far as possible.  |

### SECTION 14: Transport information

#### 14.1. UN number

|               |          |
|---------------|----------|
| DOT NA No     | : UN2810 |
| UN-No. (TDG)  | : UN2810 |
| UN-No. (IMDG) | : 2810   |
| UN-No. (IATA) | : 2810   |

#### 14.2. UN proper shipping name

|                             |                                   |
|-----------------------------|-----------------------------------|
| Proper Shipping Name (DOT)  | : Toxic, liquids, organic, n.o.s. |
| Proper Shipping Name (TDG)  | : TOXIC LIQUID, ORGANIC, N.O.S.   |
| Proper Shipping Name (IMDG) | : TOXIC LIQUID, ORGANIC, N.O.S.   |
| Proper Shipping Name (IATA) | : Toxic liquid, organic, n.o.s.   |

#### 14.3. Transport hazard class(es)

##### DOT

|                                  |       |
|----------------------------------|-------|
| Transport hazard class(es) (DOT) | : 6.1 |
| Hazard labels (DOT)              | : 6.1 |



##### TDG

|                                  |       |
|----------------------------------|-------|
| Transport hazard class(es) (TDG) | : 6.1 |
| Hazard labels (TDG)              | : 6.1 |



##### IMDG

|                                   |       |
|-----------------------------------|-------|
| Transport hazard class(es) (IMDG) | : 6.1 |
| Hazard labels (IMDG)              | : 6.1 |



##### IATA

|                                   |       |
|-----------------------------------|-------|
| Transport hazard class(es) (IATA) | : 6.1 |
| Hazard labels (IATA)              | : 6.1 |

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



### 14.4. Packing group

|                      |       |
|----------------------|-------|
| Packing group (DOT)  | : III |
| Packing group (TDG)  | : III |
| Packing group (IMDG) | : III |
| Packing group (IATA) | : III |

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

#### DOT

|  |   |
|--|---|
| UN-No.(DOT)  | : UN2810  |
| DOT Special Provisions (49 CFR 172.102)                          | : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).<br>T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)<br>TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.<br>TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP. |
| DOT Packaging Exceptions (49 CFR 173.xxx)                        | : 153   |
| DOT Packaging Non Bulk (49 CFR 173.xxx)                          | : 203   |
| DOT Packaging Bulk (49 CFR 173.xxx)                              | : 241   |
| DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) | : 60 L  |
| DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)     | : 220 L   |
| DOT Vessel Stowage Location                                      | : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.   |
| DOT Vessel Stowage Other   | : 40 - Stow "clear of living quarters"  |

#### TDG

|                        |  |
|------------------------|--|
| UN-No. (TDG)           | : UN2810   |
| TDG Special Provisions | : 16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks.<br>2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the "Food and Drugs Act". |



# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Explosive Limit and Limited Quantity Index : 5 L  
Excepted quantities (TDG) : E1  
Passenger Carrying Road Vehicle or Passenger : 60 L  
Carrying Railway Vehicle Index  
Emergency Response Guide (ERG) Number : 153

### IMDG

Special provision (IMDG) : 223, 274  
Limited quantities (IMDG) : 5 L  
Excepted quantities (IMDG) : E1  
Packing instructions (IMDG) : P001, LP01  
IBC packing instructions (IMDG) : IBC03  
Tank instructions (IMDG) : T7  
Tank special provisions (IMDG) : TP1, TP28  
EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE  
EmS-No. (Spillage) : S-A - SPILLAGE SCHEDULE Alfa - TOXIC SUBSTANCES  
Stowage category (IMDG) : A  
Stowage and handling (IMDG) : SW2  
Properties and observations (IMDG) : Toxic if swallowed, by skin contact or by inhalation.

### IATA

PCA Excepted quantities (IATA) : E1  
PCA Limited quantities (IATA) : Y642  
PCA limited quantity max net quantity (IATA) : 2L  
PCA packing instructions (IATA) : 655  
PCA max net quantity (IATA) : 60L  
CAO packing instructions (IATA) : 663  
CAO max net quantity (IATA) : 220L  
Special provision (IATA) : A3, A4, A137  
ERG code (IATA) : 6L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory, except for:

|                                 |                   |      |
|---------------------------------|-------------------|------|
| 1-Chloroheptafluorocyclopentene | CAS-No. 1759-63-3 | 100% |
|---------------------------------|-------------------|------|

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

# 1-Chloroheptafluorocyclopentene

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

### SECTION 16: Other information

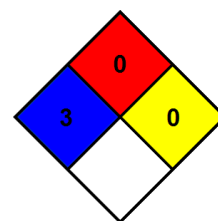
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

| Full text of H-phrases |                                  |
|------------------------|----------------------------------|
| H301                   | Toxic if swallowed               |
| H311                   | Toxic in contact with skin       |
| H315                   | Causes skin irritation           |
| H319                   | Causes serious eye irritation    |
| H331                   | Toxic if inhaled                 |
| H335                   | May cause respiratory irritation |

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

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

Safety Data Sheet (SDS), USA

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is offered solely for your consideration, investigation, and verification. It does not represent any guarantee of the properties of the product nor that the hazard precautions or procedures described are the only ones which exist. SynQuest shall not be held liable or any damage resulting from handling or from contact with the above product.