1 Identification

- Product identifier
- Product Name: Perylene ISTD
- Part Number: STCB01019
- Application of the substance / the mixture Certified Reference Material
- Details of the supplier of the safety data sheet
  - Manufacturer/Supplier: EMERALD Scientific
    444 Higuera Street,
    San Luis Obispo, CA 93401
  - Information department: product safety department
  - Emergency telephone number:
    Emergency Phone Number (24 hours)
    CHEMTREC (800-424-9300)
    Outside US: 703-527-3887

2 Hazard(s) identification

- Classification of the substance or mixture

  GHS02 Flame
  Flam. Liq. 2 H225 Highly flammable liquid and vapor.

  GHS06 Skull and crossbones
  Acute Tox. 2 H310 Fatal in contact with skin.
  Acute Tox. 3 H331 Toxic if inhaled.

  GHS08 Health hazard
  Carc. 2 H351 Suspected of causing cancer.
  Repr. 2 H361 Suspected of damaging fertility or the unborn child.
  STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

  GHS07
  Acute Tox. 4 H302 Harmful if swallowed.
  Skin Irrit. 2 H315 Causes skin irritation.
  Eye Irrit. 2A H319 Causes serious eye irritation.

- Label elements
  - GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
  - Hazard pictograms

- Signal word Danger

- Hazard-determining components of labeling:
  - chloroform
  - Hazard statements
    H225 Highly flammable liquid and vapor.
    H302 Harmful if swallowed.
    H310 Fatal in contact with skin.
    H331 Toxic if inhaled.
    H315 Causes skin irritation.
    H319 Causes serious eye irritation.
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H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

- Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  Immediately call a POISON CENTER/doctor.
  Store locked up.
  Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:
  - NFPA ratings (scale 0 - 4)
    Health = 3
    Fire = 3
    Reactivity = 0
  - HMIS-ratings (scale 0 - 4)
    HEALTH
    Fire = *3
    Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.
- Dangerous components:
  67-66-3 chloroform 99.5%
- Chemical identification of the substance/preparation
  198-55-0 perylene 0.5%

4 First-aid measures

- Description of first aid measures
- General information: Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation:
  Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
  In case of unconsciousness place patient stably in side position for transportation.
- After skin contact:
  Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing:
  Immediately call a doctor.
- Information for Doctor:
  - Most important symptoms and effects, both acute and delayed No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents: CO2, sand, extinguishing powder. Do not use water.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures Wear protective equipment. Keep unprotected persons away.
7 Handling and storage

- Handling:
  - Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.

- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: Store in a cool location.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions:
    Keep receptacle tightly sealed.
    Store in cool, dry conditions in well sealed receptacles.
  - Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-66-3 chloroform</td>
<td>PEL: 240 mg/m³, 50 ppm, REL: 9.78 mg/m³, 2 ppm, TLV: 49 mg/m³, 10 ppm</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
  - Personal protective equipment:
    - General protective and hygienic measures:
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
      Avoid contact with the eyes and skin.
    - Breathing equipment:
      In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
Protection of hands:
The glove material has to be impermeable and resistant to the product/the substance/the preparation. Due to missing tests no recommendation to the glove material can be given for the product/the preparation/the chemical mixture.

Material of gloves:
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection:
Tightly sealed goggles

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
Form: Liquid
Color: According to product specification
Odor: Characteristic
Odour Threshold: Not applicable.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: Undetermined.
Boiling point/Boiling range: 62 °C (144 °F)

Flash point: 0 °C (32 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 982 °C (1800 °F)

Decomposition temperature: Not applicable.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

Explosion limits:
Lower: Not applicable.
Upper: Not applicable.

Vapor pressure at 20 °C (68 °F): 210 hPa (158 mm Hg)

Density
Not applicable.
Relative density
Not applicable.
Vapor density
Not applicable.
Evaporation rate
Not applicable.

Solubility in / Miscibility with Water:
Not miscible or difficult to mix.

Partition coefficient (n-octanol/water):
Not applicable.

Viscosity:
Dynamic: Not applicable.
Kinematic: Not applicable.

Solvent content:
Organic solvents: 0.0 %
Solids content: 0.5 %
10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability: No decomposition if used according to specifications.
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:
    
    **67-66-3 chloroform**
    - Oral: LD50 908 mg/kg (rat)
    - Dermal: LD50 75 mg/kg (rat)

- Primary irritant effect:
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
- Sensitization: No sensitizing effects known.
- Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Harmful
  Irritant

- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    - 67-66-3 chloroform 2B
    - 198-55-0 perylene 3
  - NTP (National Toxicology Program)
    - 67-66-3 chloroform R
    - 198-55-0 perylene R
  - OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

12 Ecological information

- Toxicity:
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
- Additional ecological information:
  - General notes:
    - Water hazard class 3 (Self-assessment): extremely hazardous for water
    - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
    - Danger to drinking water if even extremely small quantities leak into the ground.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
### 14 Transport Information

- **UN-Number**
  - DOT, ADR, IMDG, IATA: UN1888

- **UN proper shipping name**
  - DOT: Chloroform
  - ADR: 1888 Chloroform
  - IMDG, IATA: CHLOROFORM

- **Transport hazard class(es)**
  - **DOT**
    - Class: 6.1 Toxic substances
    - Label: 6.1
  - **ADR, IMDG, IATA**
    - Class: 6.1 Toxic substances
    - Label: 6.1

- **Packing group**
  - DOT, ADR, IMDG, IATA: III

- **Environmental hazards:**
  - Not applicable.

- **Special precautions for user**
  - **Warning:** Toxic substances
  - **Danger code (Kemler):** 60
  - **EMS Number:** F-A,S-A
  - **Segregation groups**
    - Liquid halogenated hydrocarbons: A
    - Stowage Category: SW2 Clear of living quarters.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.

- **Transport/Additional information:**
  - **ADR**
    - Excepted quantities (EQ): Code: E1
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 1000 ml
  - **IMDG**
    - Limited quantities (LQ): 5L
      - Code: E1
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 1000 ml
  - **UN "Model Regulation":**
    - UN 1888 CHLOROFORM, 6.1, III

### 15 Regulatory Information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
  - Section 355 (extremely hazardous substances):
    - 67-66-3 Chloroform

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- **Section 313 (Specific toxic chemical listings):**
  - 67-66-3 chloroform

- **TSCA (Toxic Substances Control Act):**
  - All ingredients are listed.

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    - 67-66-3 chloroform
  - **Chemicals known to cause reproductive toxicity for females:**
    - None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for males:**
    - None of the ingredients is listed.
  - **Chemicals known to cause developmental toxicity:**
    - 67-66-3 chloroform

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    - 67-66-3 chloroform B2, L, NL
  - **TLV (Threshold Limit Value established by ACGIH)**
    - 67-66-3 chloroform A3
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    - 67-66-3 chloroform

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**
  - GHS02
  - GHS06
  - GHS07
  - GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - chloroform
  - **Hazard statements**
    - H225 Highly flammable liquid and vapor.
    - H302 Harmful if swallowed.
    - H310 Fatal in contact with skin.
    - H331 Toxic if inhaled.
    - H315 Causes skin irritation.
    - H319 Causes serious eye irritation.
    - H351 Suspected of causing cancer.
    - H361 Suspected of damaging fertility or the unborn child.
    - H372 Causes damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - Immediately call a POISON CENTER/doctor.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** product safety department
- **Contact:**
  - EMERALD Scientific
  - (805) 265-3659
  - www.emeraldscientific.com
- **Date of preparation / last revision** 09/18/2017 /
- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
Product Name: Perylene ISTD

DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NIPA: National Fire Protection Association (USA)
IMDS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
tPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Carc. 2: Carcinogenicity – Category 2
Repr. 2: Reproductive toxicity – Category 2
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1