Section 1. Identification

This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article.

1.1 Product identifier

Product name: Microsorb LC columns with 10-30ml of iC3-iC8 type solvent
Part no.: R0080720G5, R0080120G5, R0080810C5, R0080710C5, R0080110C5, R00083111C
Validation date: 12/24/2019

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses: Analytical chemistry.
- HPLC Column
- R0080720G5 Microsorb 100-5 NH2 Dynamax Guard 1, 18.0ml tube, 11 ml solvent
- R0080120G5 Microsorb 100-5 Si Dynamax Guard 1, 18.0ml tube, 11 ml solvent
- R0080810C5 Microsorb 100-5 CN Dynamax 250 x 10.0mm, 19.6ml tube, 12 ml solvent
- R0080710C5 Microsorb 100-5 NH2 Dynamax 250 x 10.0mm, 19.6ml tube, 12 ml solvent
- R0080110C5 Microsorb 100-5 Si Dynamax 250 x 10.0mm, 19.6ml tube, 12 ml solvent
- R00083111C Microsorb 60-8 Si Dynamax 250 x 10.0mm, 19.6ml tube, 12 ml solvent

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer: Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number

In case of emergency: CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product’s directions for use it may present potential health and safety hazards.

2.1 Classification of the substance or mixture

OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

- H225 FLAMMABLE LIQUIDS - Category 2
- H315 SKIN IRRITATION - Category 2
- H319 EYE IRRITATION - Category 2A
- H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
- H336 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
- H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (Liver) - Category 2
- H304 ASPIRATION HAZARD - Category 1
- H400 AQUATIC HAZARD (ACUTE) - Category 1
- H410 AQUATIC HAZARD (LONG-TERM) - Category 1

2.2 GHS label elements

Date of issue: 12/24/2019
Section 2. Hazards identification

**Hazard pictograms**

- Flame
- Person
- Exclamation
- Plant

**Signal word**

: Danger

**Hazard statements**

: H225 - Highly flammable liquid and vapor.
  H319 - Causes serious eye irritation.
  H315 - Causes skin irritation.
  H304 - May be fatal if swallowed and enters airways.
  H335 - May cause respiratory irritation.
  H336 - May cause drowsiness or dizziness.
  H373 - May cause damage to organs through prolonged or repeated exposure. (liver)
  H410 - Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention**

: P280 - Wear protective gloves. Wear eye or face protection.
  P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
  P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
  P242 - Use only non-sparking tools.
  P243 - Take precautionary measures against static discharge.
  P233 - Keep container tightly closed.
  P271 - Use only outdoors or in a well-ventilated area.
  P273 - Avoid release to the environment.
  P260 - Do not breathe vapor.
  P264 - Wash hands thoroughly after handling.

**Response**

: P391 - Collect spillage.
  P314 - Get medical attention if you feel unwell.
  P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
  P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
  P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
  P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse.
  P332 + P313 - If skin irritation occurs: Get medical attention.
  P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P337 + P313 - If eye irritation persists: Get medical attention.

**Storage**

: P405 - Store locked up.
  P403 - Store in a well-ventilated place.
  P235 - Keep cool.

**Disposal**

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**2.3 Other hazards**

**Hazards not otherwise classified**

: None known.

**Date of issue:** 12/24/2019
Section 3. Composition/information on ingredients

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product’s directions for use it may present potential health and safety hazards.

Substance/mixture : Mixture (encapsulated in article)

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-trimethylpentane</td>
<td>≥25 - ≤50</td>
<td>540-84-1</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>≤3</td>
<td>67-63-0</td>
</tr>
</tbody>
</table>

Contains: Organosilane bonded silica gel
Note: To the best of our knowledge, the acute and chronic toxicological properties of bonded silica gels have not been investigated. This product contains synthetic amorphous silica, and should not be confused with crystalline silica such as quartz, cristobalite, or tridymite, or with diatomaceous earth or other naturally occurring forms of amorphous silica that frequently contain crystalline forms of silica.

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : Causes skin irritation.

Date of issue : 12/24/2019
Section 4. First aid measures

Ingestion

- Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact

- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

Inhalation

- Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing
  - nausea or vomiting
  - headache
  - drowsiness/fatigue
  - dizziness/vertigo
  - unconsciousness

Skin contact

- Adverse symptoms may include the following:
  - irritation
  - redness

Ingestion

- Adverse symptoms may include the following:
  - nausea or vomiting

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician

- Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments

- No specific treatment.

Protection of first-aiders

- No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

- Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media

- Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

- Highly flammable liquid and vapor. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products

- Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - metal oxide/oxides

5.3 Advice for firefighters
Section 5. Fire-fighting measures

**Special protective actions for fire-fighters**
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Special protective equipment for fire-fighters**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

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

**For non-emergency personnel**
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**
If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and materials for containment and cleaning up

**Methods for cleaning up**
Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

### 7.1 Precautions for safe handling

**Protective measures**
Put on appropriate personal protective equipment (see Section 8). Do not breathe vapor or mist. Do not swallow. Avoid contact with eyes, skin and clothing. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**
Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

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Section 7. Handling and storage

- Store in accordance with local regulations. Store in a segregated and approved area.
- Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

- **Recommendations**: Industrial applications, Professional applications.
- **Industrial sector specific solutions**: Not applicable.

Section 8. Exposure controls/personal protection

Since the hazardous ingredient in this article is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| 2,2,4-trimethylpentane  | ACGIH TLV (United States, 3/2019).  
|                         | TWA: 300 ppm 8 hours.  
|                         | ACGIH TLV (United States, 3/2019).  
|                         | TWA: 200 ppm 8 hours.  
|                         | STEL: 400 ppm 15 minutes.  
|                         | TWA: 400 ppm 8 hours.  
|                         | TWA: 980 mg/m³ 8 hours.  
|                         | STEL: 500 ppm 15 minutes.  
|                         | STEL: 1225 mg/m³ 15 minutes.  
|                         | NIOSH REL (United States, 10/2016).  
|                         | TWA: 400 ppm 10 hours.  
|                         | TWA: 980 mg/m³ 10 hours.  
|                         | STEL: 500 ppm 15 minutes.  
|                         | STEL: 1225 mg/m³ 15 minutes.  
|                         | OSHA PEL (United States, 5/2018).  
|                         | TWA: 400 ppm 8 hours.  
|                         | TWA: 980 mg/m³ 8 hours.  

8.2 Exposure controls

- **Appropriate engineering controls**: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

- **Environmental exposure controls**: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures
Section 8. Exposure controls/personal protection

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: Solid.(containing flammable liquid)
Color: Not available.
Odor: Ether-like.
Odor threshold: Not available.
pH: Not available.
Melting point: Not available.
Boiling point: Not available.
Flash point: Closed cup: -18 to 23°C (-0.4 to 73.4°F)
Evaporation rate: Not available.
Flammability (solid, gas): Contains: Flammable liquid
Lower and upper explosive (flammable) limits: Not available.
Vapor pressure: Not available.
Vapor density: Not available.
Relative density: Not available.
Solubility: Mobile phase /Stationary phase : Insoluble
Partition coefficient: n-octanol/water: Not available.
Section 9. Physical and chemical properties

- **Auto-ignition temperature**: Not available.
- **Decomposition temperature**: Not available.
- **Viscosity**: Not available.

Section 10. Stability and reactivity

10.1 **Reactivity**: No specific test data related to reactivity available for this product or its ingredients.

10.2 **Chemical stability**: The product is stable.

10.3 **Possibility of hazardous reactions**: Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 **Conditions to avoid**: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

10.5 **Incompatible materials**: Reactive or incompatible with the following materials:
- Oxidizing materials
- Incompatible with hydrogen fluoride.

10.6 **Hazardous decomposition products**: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 **Information on toxicological effects**

**Acute toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-trimethylpentane</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat - Male, Female</td>
<td>&gt;33.52 mg/l</td>
<td>4 hours</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>12800 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>10 mg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 mg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**

- **Skin**: Repeated exposure may cause skin dryness or cracking.
- **Sensitization**: Not available.
- **Mutagenicity**: Not available.
- **Carcinogenicity**: Not available.

Date of issue: 12/24/2019
Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>OSHA</th>
<th>IARC</th>
<th>NTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**
- **Conclusion/Summary**: Not available.

**Teratogenicity**
- **Conclusion/Summary**: Not available.

**Specific target organ toxicity (single exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-trimethylpentane</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Narcotic effects, Respiratory tract irritation, Narcotic effects</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

**Specific target organ toxicity (repeated exposure)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>Category 2</td>
<td>Not determined</td>
<td>liver</td>
</tr>
</tbody>
</table>

**Aspiration hazard**

<table>
<thead>
<tr>
<th>Name</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsorb LC columns with 10-30ml of iC3-iC8 type solvent</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
<tr>
<td>2,2,4-trimethylpentane</td>
<td>ASPIRATION HAZARD - Category 1</td>
</tr>
</tbody>
</table>

**Information on the likely routes of exposure**
- Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**
- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.
- **Skin contact**: Causes skin irritation.
- **Ingestion**: Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

**Symptoms related to the physical, chemical and toxicological characteristics**
- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Inhalation**: Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing
  - nausea or vomiting
  - headache
  - drowsiness/fatigue
  - dizziness/vertigo
  - unconsciousness
- **Skin contact**: Adverse symptoms may include the following:
  - irritation
  - redness
Section 11. Toxicological information

Ingestion: Adverse symptoms may include the following: nausea or vomiting.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

Long term exposure
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

Potential chronic health effects
- General: May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity: No known significant effects or critical hazards.
- Mutagenicity: No known significant effects or critical hazards.
- Teratogenicity: No known significant effects or critical hazards.
- Developmental effects: No known significant effects or critical hazards.
- Fertility effects: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsorb LC columns with 10-30ml of iC3-iC8 type solvent</td>
<td>500000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>5000</td>
<td>12800</td>
<td>N/A</td>
<td>66.1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-trimethylpentane Propan-2-ol</td>
<td>Acute LC50 0.11 mg/l Fresh water Acute EC50 7550 mg/l Fresh water Acute LC50 1400000 µg/l Marine water Acute LC50 4200 mg/l Fresh water</td>
<td>Fish Daphnia - Daphnia magna - Neoneate Crustaceans - Crangon crangon Fish - Rasbora heteromorpha</td>
<td>96 hours 48 hours 48 hours 96 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

Date of issue: 12/24/2019
Microsorb LC columns with 10-30ml of iC3-iC8 type solvent

Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Log(P_{ow})</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,2,4-trimethylpentane</td>
<td>4.08</td>
<td>231</td>
<td>low</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>0.05</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient \((K_{OC})\) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

This Safety Data Sheet is written based on the encapsulated substance or mixture in this article. Since the hazardous ingredient is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

### Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3175</td>
<td>UN3175</td>
<td>UN3175</td>
<td>UN3175</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Solids containing flammable liquid, n.o.s. (2,2,4-trimethylpentane)</td>
<td>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. (2,2,4-trimethylpentane)</td>
<td>SOLIDO QUE CONTIENE LIQUIDO INFLAMABLE, N. E.P. (2,2,4-trimethylpentane)</td>
<td>SOLIDS CONTAINING FLAMMABLE LIQUID, N.O.S. (2,2,4-trimethylpentane)</td>
</tr>
</tbody>
</table>

Date of issue : 12/24/2019
# Section 14. Transport information

<table>
<thead>
<tr>
<th>Transport hazard class(es)</th>
<th>4.1</th>
<th>4.1</th>
<th>4.1</th>
<th>4.1</th>
<th>4.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>

**Additional information**

**Remarks:** Exempted Quantity

**DOT Classification**

- **Reportable quantity** 3125 lbs / 1418.8 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- **Limited quantity** Yes.
- **Quantity limitation** Passenger aircraft/rail: 15 kg. Cargo aircraft: 50 kg.
- **Special provisions** 47, IB6, IP2, T3, TP33

**TDG Classification**

- Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.20-2.22 (Class 4), 2.7 (Marine pollutant mark). The marine pollutant mark is not required when transported by road or rail.
- **Explosive Limit and Limited Quantity Index** 1
- **Passenger Carrying Road or Rail Index** 15
- **Special provisions** 16, 56

**Mexico Classification**

- **Special provisions** 216, 274

**IMDG**

- The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- **Emergency schedules** F-A, S-I
- **Special provisions** 216, 274

**IATA**

- The environmentally hazardous substance mark may appear if required by other transportation regulations.
- **Special provisions** A46

**Special precautions for user**

- **Transport within user’s premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to Annex II of MARPOL and the IBC Code**

- Not available.

**Date of issue:** 12/24/2019
Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)
Listed

Clean Air Act Section 602 Class I Substances
Not listed

Clean Air Act Section 602 Class II Substances
Not listed

DEA List I Chemicals (Precursor Chemicals)
Not listed

DEA List II Chemicals (Essential Chemicals)
Not listed

SARA 302/304

Composition/information on ingredients
No products were found.

SARA 304 RQ
Not applicable.

SARA 311/312

Classification
FLAMMABLE LIQUIDS - Category 2
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) - Category 2
ASPIRATION HAZARD - Category 1

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organosilane bonded silica gel 2,2,4-trimethylpentane</td>
<td>≥50 - ≤75</td>
<td>COMBUSTIBLE DUSTS</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>≤3</td>
<td>FLAMMABLE LIQUIDS - Category 2</td>
</tr>
</tbody>
</table>

State regulations

Massachusetts
The following components are listed: ISOOCTANE; ISOPROPYL ALCOHOL; 2-PROPA

New York
The following components are listed: 2,2,4-Trimethylpentane

New Jersey
The following components are listed: ISOOCTANE; 2,2,4-TRIMETHYLPENTANE; ISOPROPYL ALCOHOL; 2-PROPA

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Section 15. Regulatory information

Pennsylvania

The following components are listed: PENTANE, 2,2,4-TRIMETHYL-; 2-PROPANOL

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia

All components are listed or exempted.

Canada

Not determined.

China

All components are listed or exempted.

Europe

All components are listed or exempted.

Japan

Japan inventory (ENCS): All components are listed or exempted.

Japan inventory (ISHL): All components are listed or exempted.

New Zealand

All components are listed or exempted.

Philippines

Not determined.

Republic of Korea

Not determined.

Taiwan

All components are listed or exempted.

Thailand

Not determined.

Turkey

All components are listed or exempted.

United States

All components are listed or exempted.

Viet Nam

Not determined.

Section 16. Other information

History

Date of issue : 12/24/2019

Date of previous issue : 11/30/2017

Version : 4

Key to abbreviations : ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

GHS = Globally Harmonized System of Classification and Labelling of Chemicals

IATA = International Air Transport Association

IBC = Intermediate Bulk Container

IMDG = International Maritime Dangerous Goods

LogPow = logarithm of the octanol/water partition coefficient


N/A = Not available
## Section 16. Other information

UN = United Nations

### Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAMMABLE LIQUIDS - Category 2</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>SKIN IRRITATION - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (liver) - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>ASPIRATION HAZARD - Category 1</td>
<td>Expert judgment</td>
</tr>
<tr>
<td>AQUATIC HAZARD (ACUTE) - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>AQUATIC HAZARD (LONG-TERM) - Category 1</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

▶ Indicates information that has changed from previously issued version.

### Notice to reader

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