1 Identification

· Product identifier
  · Trade name: Isopropanol, Technical Grade
  · Article number: 165-68
  · CAS Number:
    67-63-0
  · EC number:
    200-661-7
  · Index number:
    603-117-00-0
  · Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    OFI Testing Equipment Inc.
    11302 Steeplecrest Dr.
    Houston, TX 77065
    (877) 837-8683
  · Information department: techservices@ofite.com
  · Emergency telephone number:
    INFOTRAC USA - CANADA: 1-800-535-5053
    INTERNATIONAL: 1-352-323-3500

2 Hazard(s) identification

· Classification of the substance or mixture
  · GHS02 Flame
    Flam. Liq. 2  H225  Highly flammable liquid and vapor.
  · GHS07
    Eye Irrit. 2A  H319  Causes serious eye irritation.
    STOT SE 3  H336  May cause drowsiness or dizziness.

· Label elements
  · GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms
  · GHS02
  · GHS07

· Signal word Danger
· Hazard statements
  Highly flammable liquid and vapor.
  Causes serious eye irritation.
  May cause drowsiness or dizziness.
· Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  Use explosion-proof electrical/ventilating/lighting/equipment.
  Avoid breathing dust/fume/gas/mist/vapors/spray

(Contd. on page 2)
Trade name: Isopropanol, Technical Grade

Wear protective gloves/protective clothing/eye protection/face protection. Ground/bond container and receiving equipment. Keep container tightly closed. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. 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. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use for extinction. Water. Store locked up. Store in a well-ventilated place. Keep cool. Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
- NFPA ratings (scale 0 - 4)
  
<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
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</tbody>
</table>

- HMIS-ratings (scale 0 - 4)

<table>
<thead>
<tr>
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<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

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

3 Composition/information on ingredients
- Chemical characterization: Substances
- CAS No. Description
  67-63-0 Isopropanol
- Identification number(s)
  - EC number: 200-661-7
  - Index number: 603-117-00-0

4 First-aid measures
- Description of first aid measures
  - General information: Immediately remove any clothing soiled by the product.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Immediately rinse with water.
  - After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
  - After swallowing: If symptoms persist consult doctor.
5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions:
  Dilute with plenty of water.
  Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1: 400 ppm
  - PAC-2: 2000* ppm
  - PAC-3: 12000** ppm

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.
Trade name: Isopropanol, Technical Grade

- 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

  - Components with limit values that require monitoring at the workplace:

    | CAS: 67-63-0 Isopropanol |
    |--------------------------|
    | PEL Long-term value: 980 mg/m³, 400 ppm |
    | REL Short-term value: 1225 mg/m³, 500 ppm |
    | Long-term value: 980 mg/m³, 400 ppm |
    | TLV Short-term value: 984 mg/m³, 400 ppm |
    | Long-term value: 492 mg/m³, 200 ppm |
    | BEI            |

- Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>CAS: 67-63-0 Isopropanol</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI 40 mg/L</td>
</tr>
<tr>
<td>LD50 Intraperitoneal: urine</td>
</tr>
<tr>
<td>Time: end of shift at end of workweek</td>
</tr>
<tr>
<td>LD50: Acetone (background, nonspecific)</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:
    - Immediately remove all soiled and contaminated clothing.
    - Wash hands before breaks and at the end of work.
    - Avoid contact with the eyes.
    - 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:

    Protective gloves

    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.

    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- 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.

- 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.
Trade name: Isopropanol, Technical Grade

Eye protection:
- Tightly sealed goggles

Body protection: Protective work clothing

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
- Form: Fluid
- Color: Clear
- Odor: Alcohol-like
- Odor threshold: Not determined.

pH-value (- g/l): neutral

Change in condition
- Melting point/Melting range: -89.5 °C (-129 °F)
- Boiling point/Boiling range: 82 °C (180 °F)

Flash point: 13 °C (55 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: 425 °C (797 °F)

Decomposition temperature: Not determined.

Auto igniting: Not determined.

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

Explosion limits:
- Lower: 2 Vol %
- Upper: 12 Vol %

Vapor pressure at 20 °C (68 °F): 43 hPa (32 mm Hg)

Density at 20 °C (68 °F): 0.785 g/cm³ (6.551 lbs/gal)
- Relative density: Not determined.
- Vapor density: Not determined.
- Evaporation rate: Not determined.

Solubility in / Miscibility with Water: Fully miscible.

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

Viscosity:
- Dynamic at 20 °C (68 °F): 2.43 mPas
- Kinematic: Not determined.

Other information: No further relevant information available.
10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
- 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:
      | Endpoint  | LD50     | LC50     |
      |-----------|----------|----------|
      | Oral      | 5045 mg/kg (rat) |
      | Dermal    | 12800 mg/kg (rabbit) |
      | Inhalative| 30 mg/l (rat)      |
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: Irritating effect.
    - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    - Carcinogenic categories
      - IARC (International Agency for Research on Cancer) 3
      - NTP (National Toxicology Program) Substance is not listed.
      - OSHA-Ca (Occupational Safety & Health Administration) Substance is not 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 1 (Assessment by list): slightly hazardous for water
      - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
      - 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.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA UN1219

- UN proper shipping name
  - DOT, IMDG, IATA Isopropanol

- Transport hazard class(es)
  - DOT
    - Class 3 Flammable liquids
    - Label 3
  - IMDG, IATA
    - Class 3 Flammable liquids
    - Label 3

- Packing group
  - DOT, IMDG, IATA II

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  - DOT, IMDG, IATA
    - Warning: Flammable liquids
    - Danger code (Kemler): 30
    - Stowage Category B

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

- UN "Model Regulation": UN 1219 ISOPROPANOL, 3, II
15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara
- Section 355 (extremely hazardous substances): Substance is not listed.
- Section 313 (Specific toxic chemical listings): Substance is listed.
- TSCA (Toxic Substances Control Act): Substance is listed.
- Proposition 65
  - Chemicals known to cause cancer: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for females: 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.
- Carcinogenic categories
  - EPA (Environmental Protection Agency) Substance is not listed.
  - TLV (Threshold Limit Value established by ACGIH) A4
  - NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
  - GHS label elements: The substance is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

GHS02  GHS07

- Signal word: Danger
- Hazard statements
  - Highly flammable liquid and vapor.
  - Causes serious eye irritation.
  - May cause drowsiness or dizziness.
- Precautionary statements
  - Keep away from heat/sparks/open flames/hot surfaces. No smoking.
  - Use explosion-proof electrical/ventilating/lighting/equipment.
  - Avoid breathing dust/fume/gas/mist/vapors/spray.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - Ground/bond container and receiving equipment.
  - Keep container tightly closed.
  - Use only non-sparking tools.
  - Take precautionary measures against static discharge.
  - Wash thoroughly after handling.
  - Use only outdoors or in a well-ventilated area.
  - 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.
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
  - If eye irritation persists: Get medical advice/attention.
  - In case of fire: Use for extinction: Water.
  - Store locked up.
  - Store in a well-ventilated place. Keep cool.
  - 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: Environment protection department.
- Contact:
- Date of preparation / last revision
  Revision 0.1, 5-01-2015: revised to correct emergency contact and information dept. STN
  Creation date for SDS 10-02-2014. STN
  Revision 0.2, 07-03-2017: Reviewed SDS. STN
  07/03/2017 / -
- 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
  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
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: 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
  BEI: Biological Exposure Limit
  Flam. Liq. 2: Flammable liquids – Category 2
  Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  STOT SE 3: Specific target organ toxicity (single exposure) – Category 3