1 Identification

· Product identifier
  · Trade name: Methyl Pentanoate
  · Part number: WRK-130D
  · CAS Number: 624-24-8
  · EC number: 210-838-0

· Application of the substance / the mixture
  Reagents and Standards for Analytical Chemical Laboratory Use

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    Agilent Technologies, Inc.
    5301 Stevens Creek Blvd.
    Santa Clara, CA  95051  USA

· Information department:
  Telephone: 800-227-9770
  e-mail: pdl-msds_author@agilent.com
· Emergency telephone number: CHEMTREC®: 1-800-424-9300

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. 3 H331 Toxic if inhaled.

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

· Hazard pictograms
  · GHS02
  · GHS06

· Signal word
  · Danger

· Hazard-determining components of labeling:
  methyl valerate

· Hazard statements
  Highly flammable liquid and vapor.
  Toxic if inhaled.

· Precautionary statements
  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  Ground/bond container and receiving equipment.
  Use explosion-proof electrical/ventilating/lighting/equipment.
Trade name: Methyl Pentanoate

Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a poison center/doctor.
Specific treatment (see on this label).
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:

- NFPA ratings (scale 0 - 4)
  - Health = 1
  - Fire = 3
  - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - Health = 1
  - 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: Substances
  - CAS No. Description
    624-24-8 methyl valerate
- Identification number(s)
  - EC number: 210-838-0

4 First-aid measures

- Description of first aid measures
  - General information:
    Immediately remove any clothing soiled by the product.
    Remove breathing apparatus only after contaminated clothing have been completely removed.
    In case of irregular breathing or respiratory arrest provide artificial respiration.
  - After inhalation:
    Supply fresh air or oxygen; call for doctor.
    In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
Trade name: Methyl Pentanoate

(Contd. of page 2)

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** If symptoms persist consult 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, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - **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.
- **Environmental precautions:** 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:** Substance is not listed.
  - **PAC-2:** Substance is not listed.
  - **PAC-3:** Substance is not listed.

### 7 Handling and storage

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

(Contd. on page 4)
**Trade name:** Methyl Pentanoate

Keep respiratory protective device available.

- **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.

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**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:** Not required.
  - **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.
      - Store protective clothing separately.
    - **Breathing equipment:**
      - When used as intended with Agilent instruments, the use of the product under normal laboratory conditions and with standard practices does not result in significant airborne exposures and therefore respiratory protection is not needed.
      - Under an emergency condition where a respirator is deemed necessary, use a NIOSH or equivalent approved device/equipment with appropriate organic or acid gas cartridge.
    - **Protection of hands:**
      - Although not recommended for constant contact with the chemicals or for clean-up, nitrile gloves 11-13 mil thickness are recommended for normal use. The breakthrough time is 1 hr. For cleaning a spill where there is direct contact of the chemical, butyl rubber gloves are recommended 12-15 mil thickness with breakthrough times exceeding 4 hrs. Supplier recommendations should be followed.
  - **Material of gloves**
    - For normal use: nitrile rubber, 11-13 mil thickness
    - For direct contact with the chemical: butyl rubber, 12-15 mil thickness
    - 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**
    - For normal use: nitrile rubber: 1 hour
    - For direct contact with the chemical: butyl rubber: >4 hours
### 9 Physical and chemical properties

#### Information on basic physical and chemical properties

- **General Information**
  - **Appearance:**
    - **Form:** Fluid
    - **Color:** Not determined.
  - **Odor:** Characteristic
  - **Odor threshold:** Not determined.

- **pH-value:**
  - Not determined.

- **Change in condition**
  - Melting point/Melting range:
    - -91 °C (-131.8 °F)
  - Boiling point/Boiling range:
    - 128 °C (262.4 °F)

- **Flash point:**
  - 22 °C (71.6 °F)

- **Flammability (solid, gaseous):**
  - Not applicable.

- **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:
    - Not determined.
  - Upper:
    - Not determined.

- **Vapor pressure:**
  - Not determined.

- **Density at 20 °C (68 °F):**
  - 0.875 g/cm³ (7.30188 lbs/gal)

- **Relative density**
  - Not determined.

- **Vapor density**
  - Not determined.

- **Evaporation rate**
  - Not determined.

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

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

- **Viscosity:**
  - Dynamic:
    - Not determined.
  - Kinematic:
    - Not determined.
  - VOC content:
    - 0.00 %
    - 0.0 g/l / 0.00 lb/gal

- **Solids content:**
  - 0.0 %
Safety Data Sheet
acc. to OSHA HCS

Printing date 03/25/2019 Reviewed on 03/25/2019

Version Number 2

Trade name: Methyl Pentanoate

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:
    - ATE (Acute Toxicity Estimate)
      Inhalative LC50/4 h 3 mg/L
- Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
- Additional toxicological information:
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    Substance is not listed.
  - NTP (National Toxicology Program)
    Substance is not listed.
  - OSHA-Ca (Occupational Safety & 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 2 (Assessment by list): hazardous for water
  Do not allow product to reach ground water, water course or sewage system.
  Danger to drinking water if even small quantities leak into the ground.

(Contd. of page 7)
Trade name: Methyl Pentanoate

- 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.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA UN3272
- UN proper shipping name
  - DOT Esters, n.o.s.
  - IMDG, IATA ESTERS, N.O.S.
- Transport hazard class(es)
  - DOT, IMDG, IATA
    - Class 3 Flammable liquids
    - Label 3
- Packing group
  - DOT, IMDG, IATA III
- Environmental hazards: Not applicable.
- Special precautions for user
  - Warning: Flammable liquids
- Danger code (Kemler): 30
- Stowage Category A
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.
- Transport/Additional information:
  - DOT
  - Quantity limitations On passenger aircraft/rail: 60 L
  - On cargo aircraft only: 220 L
58.1.26

· IMDG
· Limited quantities (LQ) 5L
· Excepted quantities (EQ) Code: E1
    Maximum net quantity per inner packaging: 30 ml
    Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 3272 ESTERS, N.O.S., 3, III

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 not 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)
  Substance is not listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
  Substance is not listed.
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* 16 Other information

The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

· Department issuing SDS: Document Control / Regulatory
· Contact: regulatory@ultrasci.com
· Date of preparation / last revision 03/25/2019 / 1

(Contd. of page 7)
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)
- VOC: Volatile Organic Compounds (USA, EU)
- 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
- Flam. Liq. 2: Flammable liquids – Category 2
- Acute Tox. 3: Acute toxicity – Category 3

* Data compared to the previous version altered.