

**Safety Data Sheet**  
 per OSHA HazCom 2012

## 1 Identification

**Product identifier**

**Product name:** **2-Hexanone**

**Stock number:** A14867

**CAS Number:**  
591-78-6

**EC number:**  
209-731-1

**Index number:**  
606-030-00-6

**Relevant identified uses of the substance or mixture and uses advised against.** No further relevant information available.

**Identified use:** SU24 Scientific research and development

**Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Alfa Aesar  
 Thermo Fisher Scientific Chemicals, Inc.  
 30 Bond Street  
 Ward Hill, MA 01835-8099  
 Tel: 800-343-0660  
 Fax: 800-322-4757  
 Email: tech@alfa.com  
 www.alfa.com

**Information Department:** Health, Safety and Environmental Department

**Emergency telephone number:**

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**

 GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapour.

 GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 1 H372 Causes damage to the peripheral nervous system and the brain through prolonged or repeated exposure. Route of exposure: Oral and Inhalative.

 GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

**Hazards not otherwise classified** No information known.

**Label elements**

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

**Hazard pictograms**



GHS02 GHS07 GHS08

**Signal word** Danger

**Hazard statements**

H226 Flammable liquid and vapour.

H361 Suspected of damaging fertility or the unborn child.

H336 May cause drowsiness or dizziness.

H372 Causes damage to the peripheral nervous system and the brain through prolonged or repeated exposure. Route of exposure: Oral and Inhalative.

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**WHMIS classification**

B2 - Flammable liquid

D2A - Very toxic material causing other toxic effects



**Classification system**

**HMIS ratings (scale 0-4)**

**(Hazardous Materials Identification System)**

**HEALTH 2** Health (acute effects) = 2

**FIRE 3** Flammability = 3

**REACTIVITY 1** Physical Hazard = 1

**Other hazards**

**Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Product name: 2-Hexanone**

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### 3 Composition/information on ingredients

**Chemical characterization: Substances**

**CAS# Description:**

591-78-6 2-Hexanone

**Identification number(s):**

**EC number:** 209-731-1

**Index number:** 606-030-00-6

### 4 First-aid measures

**Description of first aid measures**

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek medical treatment.

**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** Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

**Special hazards arising from the substance or mixture**

If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide

**Advice for firefighters**

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

### 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.

**Methods and material for containment and cleaning up:**

Keep away from ignition sources.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose of contaminated material as waste according to section 13.

**Prevention of secondary hazards:** Keep away from ignition sources.

**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.

### 7 Handling and storage

**Handling**

**Precautions for safe handling**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:**

Protect against electrostatic charges.

Fumes can combine with air to form an explosive mixture.

Keep ignition sources away.

**Conditions for safe storage, including any incompatibilities**

**Storage**

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:**

Store away from strong bases.

Store away from oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**Specific end use(s)** No further relevant information available.

### 8 Exposure controls/personal protection

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

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

**591-78-6 2-Hexanone (100.0%)**

PEL (USA) Long-term value: 410 mg/m<sup>3</sup>, 100 ppm

REL (USA) Long-term value: 4 mg/m<sup>3</sup>, 1 ppm

TLV (USA) Short-term value: 40 mg/m<sup>3</sup>, 10 ppm

Long-term value: 20 mg/m<sup>3</sup>, 5 ppm

Skin, BEI

EL (Canada) Short-term value: 10 ppm

Long-term value: 5 ppm

Skin, R

EV (Canada) Long-term value: 4 mg/m<sup>3</sup>, 1 ppm

Skin

(Contd. on page 3)  
USA

Product name: **2-Hexanone**

(Contd. of page 2)

**Ingredients with biological limit values:**

**591-78-6 2-Hexanone (100.0%)**

BEI (USA) 0.4 mg/L  
Medium: urine  
Time: end of shift at end of workweek  
Parameter: 2,5-Hexanedione without hydrolysis

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Recommended filter device for short term use:**

Use a respirator with organic vapor/acid gas cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Material of gloves** Butyl rubber, BR

**Penetration time of glove material (in minutes)** 60

**Glove thickness** 0.3 mm

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

**Form:** Liquid  
**Color:** Colorless  
**Odor:** Pungent  
**Odor threshold:** Not determined.

**pH-value:** Not determined.

**Change in condition**

**Melting point/Melting range:** -56 °C (-69 °F)  
**Boiling point/Boiling range:** 126-127 °C (259-261 °F)  
**Sublimation temperature / start:** Not determined

**Flash point:** 23 °C (73 °F)  
**Flammability (solid, gaseous)** Not applicable.  
**Ignition temperature:** 530 °C (986 °F)  
**Decomposition temperature:** Not determined  
**Auto igniting:** Not determined.

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

**Explosion limits:**

**Lower:** 1.2 Vol %  
**Upper:** 8 Vol %  
**Vapor pressure at 20 °C (68 °F):** 3.5 hPa (3 mm Hg)  
**Density at 20 °C (68 °F):** 0.811 g/cm<sup>3</sup> (6.768 lbs/gal)  
**Relative density** Not determined.  
**Vapor density** Not determined.  
**Evaporation rate** Not determined.

**Solubility in / Miscibility with**  
**Water at 20 °C (68 °F):** 20 g/l

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

**Viscosity:**

**dynamic:** Not determined.

**kinematic:** Not determined.

**Other information** No further relevant information available.

**10 Stability and reactivity**

**Reactivity** No information known.

**Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions** Reacts with strong oxidizing agents

**Conditions to avoid** No further relevant information available.

**Incompatible materials:**

Oxidizing agents

Bases

**Hazardous decomposition products:** Carbon monoxide and carbon dioxide

**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

**LD/LC50 values that are relevant for classification:**

Oral	LD50	2590 mg/kg (rat)
Dermal	LD50	4800 mg/kg (rabbit)
Inhalative	LC50/4H	8000 ppm/4H (rat)

**Skin irritation or corrosion:** May cause irritation

**Eye irritation or corrosion:** May cause irritation

**Sensitization:** No sensitizing effects known.

**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

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USA

**Product name: 2-Hexanone**

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**Carcinogenicity:** EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

**Reproductive toxicity:**

Suspected of damaging fertility or the unborn child.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.

**Specific target organ system toxicity - repeated exposure:**

Causes damage to the peripheral nervous system and the brain through prolonged or repeated exposure. Route of exposure: Oral and Inhalative.

**Specific target organ system toxicity - single exposure:**

May cause drowsiness or dizziness.  
May cause respiratory irritation.

**Aspiration hazard:** No effects known.

**Subacute to chronic toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

**Carcinogenic categories**

**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.

**Bioaccumulative potential** No further relevant information available.

**Mobility in soil** No further relevant information available.

**Additional ecological information:**

**General notes:**

Do not allow material to be released to the environment without proper governmental permits.  
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.  
Avoid transfer into the environment.

**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** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

**UN-Number**

**DOT, IMDG, IATA**

UN1224

**UN proper shipping name**

**DOT**

Ketones, liquid, n.o.s. (2-Hexanone)

**IMDG, IATA**

KETONES, LIQUID, N.O.S. (2-Hexanone)

**Transport hazard class(es)**

**DOT**



**Class**

3 Flammable liquids.

**Label**

3

**Class**

3 (F1) Flammable liquids

**Label**

3

**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

**EMS Number:**

F-E,S-D

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

**Transport/Additional information:**

**DOT**

**Marine Pollutant (DOT):**

No

**UN "Model Regulation":**

UN1224, Ketones, liquid, n.o.s. (2-Hexanone), 3, III

**15 Regulatory information**

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

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

**Hazard pictograms**



GHS02 GHS07 GHS08

**Signal word** Danger

**Hazard statements**

H226 Flammable liquid and vapour.

(Contd. on page 5)  
USA

**Product name: 2-Hexanone**

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H361 Suspected of damaging fertility or the unborn child.  
H336 May cause drowsiness or dizziness.  
H372 Causes damage to the peripheral nervous system and the brain through prolonged or repeated exposure. Route of exposure: Oral and Inhalative.

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
All components of this product are listed on the Canadian Domestic Substances List (DSL).

**SARA Section 313 (specific toxic chemical listings)** Substance is not listed.

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer** Substance is not listed.

**Prop 65 - Developmental toxicity**

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**Prop 65 - Developmental toxicity, female** Substance is not listed.

**Prop 65 - Developmental toxicity, male**

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**Information about limitation of use:** For use only by technically qualified individuals.

**Other regulations, limitations and prohibitive regulations**

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

Substance is not listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.

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

**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department

**Date of preparation / last revision** 12/08/2015 / -

**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
ICAO: International Civil Aviation Organization  
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  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
HMIS: Hazardous Materials Identification System (USA)  
WHMIS: Workplace Hazardous Materials Information System (Canada)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
vPvB: very Persistent and very Bioaccumulative  
ACGIH: American Conference of Governmental Industrial Hygienists (USA)  
OSHA: Occupational Safety and Health Administration (USA)  
NTP: National Toxicology Program (USA)  
IARC: International Agency for Research on Cancer  
EPA: Environmental Protection Agency (USA)  
Flam. Liq. 3: Flammable liquids, Hazard Category 3  
Repr. 2: Reproductive toxicity, Hazard Category 2  
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3  
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1