

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Product name : Custom Ketones Standard
Product code : AL0-130010
Product group : Trade product

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

1.2.1. Relevant identified uses

Main use category : Laboratory Use
Industrial/Professional use spec : Industrial
For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Phenova
6390 Joyce Dr. Suite 100
80403 Golden, CO - United States
T 1-866-942-2978 - F 1-866-283-0269
info@phenova.com - www.phenova.com

1.4. Emergency telephone number

Emergency number : ChemTel Assistance (US/Canada) 1-800-255-3924
ChemTel Assistance (International) +1 813-248-0585

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2 H225
Acute Tox. 4 (Oral) H302
Acute Tox. 4 (Dermal) H312

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F; R11

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS07

Signal word (CLP) : Danger

Hazardous ingredients : 2-Fluorophenol

Hazard statements (CLP) : H225 - Highly flammable liquid and vapor
H302+H312 - Harmful if swallowed or in contact with skin

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P233 - Keep container tightly closed
P264 - Wash ... thoroughly after handling

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P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P308+P313 - IF exposed or concerned: Get medical advice/attention
P321 - Specific treatment (see ... on this label)
P362+P364 - Take off contaminated clothing and wash it before reuse
P403+P235 - Store in a well-ventilated place. Keep cool

No labeling applicable

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
2-Fluorophenol (Component)	(CAS No) 367-12-4 (EC no) 206-681-2	89	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332
acetone (Component) substance with a Community workplace exposure limit	(CAS No) 67-64-1 (EC no) 200-662-2 (EC index no) 606-001-00-8	0.2	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336
2-Butanone (Component) substance with a Community workplace exposure limit	(CAS No) 78-93-3 (EC no) 201-159-0 (EC index no) 606-002-00-3	0.2	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336
2-hexanone (Component)	(CAS No) 591-78-6 (EC no) 209-731-1 (EC index no) 606-030-00-6	0.2	Flam. Liq. 3, H226 Repr. 2, H361f STOT SE 3, H336 STOT RE 1, H372
4-Methyl-2-Pentanone (Component) substance with a Community workplace exposure limit	(CAS No) 108-10-1 (EC no) 203-550-1 (EC index no) 606-004-00-4	0.2	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Eye Irrit. 2, H319 STOT SE 3, H335
cyclohexanone (Component) substance with a Community workplace exposure limit	(CAS No) 108-94-1 (EC no) 203-631-1 (EC index no) 606-010-00-7	0.2	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Immediately call a poison center or doctor/physician. Wash with plenty of soap and water. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Call a POISON CENTER or doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.

Symptoms/injuries after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapor.

Explosion hazard : May form flammable/explosive vapor-air mixture.

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5.3. Advice for firefighters

- Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
- Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
- Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up in absorbent material. Collect spillage.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Handle empty containers with care because residual vapors are flammable.
- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Use only non-sparking tools.
- Hygiene measures : Do not eat, drink or smoke when using this product. Gently wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.
- Storage conditions : Keep in fireproof place. Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Keep away from any flames or sparking source.
- Incompatible materials : Direct sunlight. Heat sources.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

- Appropriate engineering controls : Either local exhaust or general room ventilation is usually required.
- Personal protective equipment : Avoid all unnecessary exposure. Gloves. Protective clothing. Protective goggles. Safety glasses.



- Hand protection : Wear chemically resistant protective gloves. Wear suitable gloves resistant to chemical penetration.
- Eye protection : Chemical goggles or safety glasses. Safety glasses.
- Skin and body protection : Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.
- Respiratory protection : Wear appropriate mask.
- Other information : Do not eat, drink or smoke during use.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Colorless.
Odor	: characteristic.
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapor
Relative density	: No data available
Solubility	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Highly flammable liquid and vapor. May form flammable/explosive vapor-air mixture.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Open flame.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Dermal: Harmful in contact with skin.

Custom Ketones Standard	
ATE CLP (oral)	561.798 mg/kg body weight
ATE CLP (dermal)	1235.955 mg/kg body weight
acetone (67-64-1)	
LD50 oral rat	5800 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value)
LD50 dermal rabbit	20000 mg/kg (Rabbit; Experimental value; Equivalent or similar to OECD 402; >7426 mg/kg bodyweight; Rabbit; Weight of evidence)
LC50 inhalation rat (mg/l)	71 mg/l/4h (Rat; Experimental value; 76 mg/l/4h; Rat; Experimental value)
LC50 inhalation rat (ppm)	30000 ppm/4h (Rat; Experimental value)
ATE CLP (oral)	5800.000 mg/kg body weight
ATE CLP (dermal)	20000.000 mg/kg body weight
ATE CLP (gases)	30000.000 ppmV/4h
ATE CLP (vapors)	71.000 mg/l/4h
ATE CLP (dust, mist)	71.000 mg/l/4h
2-hexanone (591-78-6)	
LD50 oral rat	2590 mg/kg (Rat)
LD50 dermal rabbit	4800 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	33 mg/l/4h (Rat)
LC50 inhalation rat (ppm)	8000 ppm/4h (Rat)

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2-hexanone (591-78-6)	
ATE CLP (oral)	2590.000 mg/kg body weight
ATE CLP (dermal)	4800.000 mg/kg body weight
ATE CLP (gases)	8000.000 ppmV/4h
ATE CLP (vapors)	33.000 mg/l/4h
ATE CLP (dust, mist)	33.000 mg/l/4h
4-Methyl-2-Pentanone (108-10-1)	
LD50 oral rat	2080 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value)
LD50 dermal rat	>= 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
LD50 dermal rabbit	> 16000 mg/kg (Rabbit)
LC50 inhalation rat (mg/l)	8.2- 16.4,Rat; Experimental value
LC50 inhalation rat (ppm)	2000 - 4000 ppm/4h (Rat; Experimental value)
ATE CLP (oral)	2080.000 mg/kg body weight
ATE CLP (gases)	2000.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
cyclohexanone (108-94-1)	
LD50 oral rat	1535 mg/kg (Rat; BASF test; Experimental value; 2650 mg/kg bodyweight; Rat)
ATE CLP (oral)	1535.000 mg/kg body weight
ATE CLP (gases)	4500.000 ppmV/4h
ATE CLP (vapors)	11.000 mg/l/4h
ATE CLP (dust, mist)	1.500 mg/l/4h
2-Fluorophenol (367-12-4)	
ATE CLP (oral)	500.000 mg/kg body weight
ATE CLP (dermal)	1100.000 mg/kg body weight

Skin corrosion/irritation	: Not classified Based on available data, the classification criteria are not met
Serious eye damage/irritation	: Not classified Based on available data, the classification criteria are not met
Respiratory or skin sensitization	: Not classified Based on available data, the classification criteria are not met
Germ cell mutagenicity	: Not classified Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified Based on available data, the classification criteria are not met May cause cancer
Reproductive toxicity	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (repeated exposure)	: Not classified Based on available data, the classification criteria are not met
Aspiration hazard	: Not classified Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	: Harmful if swallowed. Harmful in contact with skin.

SECTION 12: Ecological information

12.1. Toxicity

acetone (67-64-1)	
LC50 fish 2	5540 mg/l (LC50; EU Method C.1; 96 h; Salmo gairdneri; Static system; Fresh water; Experimental value)
EC50 Daphnia 2	12600 mg/l (LC50; Other; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
2-Butanone (78-93-3)	
EC50 Daphnia 1	308 mg/l (EC50; OECD 202: Daphnia sp. Acute Immobilisation Test; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)

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2-Butanone (78-93-3)	
LC50 fish 2	2993 mg/l (LC50; OECD 203: Fish, Acute Toxicity Test; 96 h; Pimephales promelas; Static system; Fresh water; Experimental value)
2-hexanone (591-78-6)	
LC50 fish 1	428 mg/l (LC50; 96 h; Pimephales promelas)
cyclohexanone (108-94-1)	
LC50 fish 1	527 - 732 mg/l (LC50; US EPA; 96 h; Pimephales promelas; Flow-through system; Fresh water; Experimental value)

12.2. Persistence and degradability

Custom Ketones Standard	
Persistence and degradability	Not established.
acetone (67-64-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. No (test)data on mobility of the substance available.
Biochemical oxygen demand (BOD)	1.43 g O ₂ /g substance
Chemical oxygen demand (COD)	1.92 g O ₂ /g substance
ThOD	2.20 g O ₂ /g substance
BOD (% of ThOD)	0.872 (20 days; Literature study)
2-Butanone (78-93-3)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions.
Biochemical oxygen demand (BOD)	2.03 g O ₂ /g substance
Chemical oxygen demand (COD)	2.31 g O ₂ /g substance
ThOD	2.44 g O ₂ /g substance
BOD (% of ThOD)	> 0.5 (5 days; Literature study)
2-hexanone (591-78-6)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil.
ThOD	2.72 g O ₂ /g substance
4-Methyl-2-Pentanone (108-10-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. Low potential for adsorption in soil. Photolysis in the air.
Biochemical oxygen demand (BOD)	2.06 g O ₂ /g substance
Chemical oxygen demand (COD)	2.16 g O ₂ /g substance
ThOD	2.72 g O ₂ /g substance
BOD (% of ThOD)	0.76
cyclohexanone (108-94-1)	
Persistence and degradability	Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil.
Biochemical oxygen demand (BOD)	1.232 g O ₂ /g substance
Chemical oxygen demand (COD)	2.605 g O ₂ /g substance
ThOD	2.605 g O ₂ /g substance
BOD (% of ThOD)	0.32 - 0.47 (Literature study)

12.3. Bioaccumulative potential

Custom Ketones Standard	
Bioaccumulative potential	Not established.
acetone (67-64-1)	
BCF fish 1	0.69 (BCF)
BCF other aquatic organisms 1	3 (BCF; BCFWIN)
Log Pow	-0.24 (Test data)
Bioaccumulative potential	Not bioaccumulative.
2-Butanone (78-93-3)	
Log Pow	0.3 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method; 40 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
2-hexanone (591-78-6)	
Log Pow	1.38
4-Methyl-2-Pentanone (108-10-1)	
BCF fish 1	2 - 5 (BCF)

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4-Methyl-2-Pentanone (108-10-1)	
Log Pow	1.9 (Experimental value; OECD 117: Partition Coefficient (n-octanol/water), HPLC method)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
cyclohexanone (108-94-1)	
BCF other aquatic organisms 1	2.4 (BCF)
Log Pow	0.86 (Experimental value; OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method; 25 °C)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
12.4. Mobility in soil	
acetone (67-64-1)	
Surface tension	0.0237 N/m
2-Butanone (78-93-3)	
Surface tension	0.024 N/m (20 °C)
Log Koc	Koc,34; Calculated value
Ecology - soil	Slightly harmful to plants.
2-hexanone (591-78-6)	
Surface tension	0.025 N/m (20 °C)
4-Methyl-2-Pentanone (108-10-1)	
Surface tension	0.024 N/m (20 °C)
Log Koc	Koc,101.85; Weight of evidence; Calculated value; log Koc; 2.008; Weight of evidence; Calculated value
cyclohexanone (108-94-1)	
Surface tension	0.034 N/m (20 °C)
Log Koc	log Koc, SRC PCKOCWIN v1.66; 1.18; Calculated value

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 1992
UN-No.(IATA) : 1992

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE LIQUID, TOXIC, N.O.S.
Proper Shipping Name (IATA) : FLAMMABLE LIQUID, TOXIC, N.O.S.
Transport document description (ADR) : UN 1992 FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II, (D/E)

14.3. Packing group

Class (ADR) : 3
Classification code (ADR) : FT1
Class (IATA) : 3
Subsidiary risks (ADR) : 6.1
Hazard labels (ADR) : 3, 6.1



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Hazard labels (IATA) : 3, 6.1



14.4. Packing group

Packing group (ADR) : II
Packing group (IATA) : II

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.) : 336
Classification code (ADR) : FT1
Orange plates :



Special provision (ADR) : 274
Transport category (ADR) : 2
Tunnel restriction code (ADR) : D/E
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2

14.6.2. Transport by sea

No additional information available

14.6.3. Air transport

CAO packing instructions (IATA) : 364
CAO max net quantity (IATA) : 60L
PCA packing instructions (IATA) : 352
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA max net quantity (IATA) : 1L
PCA Excepted quantities (IATA) : E2
ERG code (IATA) : 3HP

14.6.4. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions
Contains no REACH candidate substance
Contains no REACH Annex XIV substances.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

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Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Other information : None.

PHV SDS EU

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