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### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name : CCN(C)C=O-(Isobutoxymethyl)acrylamide  
Product Number : 436534  
Brand : Aldrich  
CAS-No. : 16669-59-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATES  
Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

#### 1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

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### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Dermal (Category 4), H312

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Skin sensitisation (Category 1), H317

Germ cell mutagenicity (Category 1B), H340

Carcinogenicity (Category 1A), H350

Reproductive toxicity (Category 2), H361

Specific target organ toxicity - repeated exposure (Category 1), H372

Specific target organ toxicity - repeated exposure, Oral (Category 1), Peripheral nervous system, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word	Danger
Hazard statement(s)	
H227	Combustible liquid.
H302 + H312	Harmful if swallowed or in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H340	May cause genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H372	Causes damage to organs (/\$/*_ORG_REP_ORAL\$/) through prolonged or repeated exposure if swallowed.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Formula	:	C <sub>8</sub> H <sub>15</sub> NO <sub>2</sub>
Molecular weight	:	157.21 g/mol
CAS-No.	:	16669-59-3

#### Hazardous components

Component	Classification	Concentration
<b>N-[(2-Methylpropoxy)methyl]acrylamide</b>		
	Flam. Liq. 4; Acute Tox. 4; H227, H302 + H312	>= 70 - < 90 %
<b>Acrylamide</b>		
	Acute Tox. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Muta. 1B; Carc. 1B; Repr. 2; STOT RE 1; Aquatic Acute 3; H301, H312 + H332, H315, H317, H319, H340, H350, H361, H372, H402	>= 5 - < 10 %
<b>N-(Hydroxymethyl)acrylamide</b>		
	Acute Tox. 3; Skin Sens. 1; Muta. 1B; Carc. 1B; Repr. 2; STOT RE 1; H301, H317, H340, H350, H361, H372	>= 5 - < 10 %
<b>iso-Butanol</b>		
	Flam. Liq. 3; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H226, H315, H318, H335, H336	>= 1 - < 5 %
<b>N,N'-Methylenediacrylamide</b>		
	Acute Tox. 4; H302	>= 1 - < 5 %
<b>Formaldehyde</b>		
	Flam. Liq. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Aquatic Acute 3; H227, H301 + H311 + H331, H314, H317, H341, H350, H402	>= 0.1 - < 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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### 5. FIREFIGHTING MEASURES

#### 5.1 Extinguishing media

##### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### Unsuitable extinguishing media

Do NOT use water jet.

#### 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NOx)

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information

Use water spray to cool unopened containers.

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### 6. ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

#### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

#### 6.4 Reference to other sections

For disposal see section 13.

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### 7. HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

#### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Acrylamide	79-06-1	TWA	0.03 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	0.03 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.3 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		
		PEL	0.03 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		
iso-Butanol	78-83-1	TWA	50 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye irritation Skin irritation		
		TWA	50 ppm 150 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100 ppm 300 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		PEL	50 ppm 150 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Formaldehyde	50-00-0	C	0.300000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Suspected human carcinogen Sensitizer		
		TWA	0.016000 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		C	0.100000 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 15 minute ceiling value		
		Substance listed; for more information see OSHA document 1910.1048		
		Substance listed; for more information see OSHA document 1910.1048		
		PEL	0.750000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1048 This standard applies to all occupational exposures to formaldehyde, i.e. from formaldehyde gas, its solutions, and materials that release formaldehyde OSHA specifically regulated carcinogen		

		STEL	2.000000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1048 This standard applies to all occupational exposures to formaldehyde, i.e. from formaldehyde gas, its solutions, and materials that release formaldehyde OSHA specifically regulated carcinogen		
		TWA	0.016000 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol. See Appendix A		
		C	0.100000 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol. See Appendix A 15 minute ceiling value		
		C	0.3 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Dermal Sensitization Respiratory sensitization Upper Respiratory Tract irritation Eye irritation 2017 Adoption Suspected human carcinogen		
		TWA	0.016 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol. See Appendix A		
		C	0.1 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen Formalin is an aqueous solution that is 37% formaldehyde by weight; inhibited solutions usually contain 6-12% methyl alcohol. Also see specific listings for Formaldehyde and Methyl alcohol. See Appendix A 15 minute ceiling value		
		PEL	0.75 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		see Section 5217		
		STEL	2 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		see Section 5217		

Hazardous components without workplace control parameters

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## Personal protective equipment

### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: clear, liquid Colour: colourless
b) Odour	No data available
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	No data available
f) Initial boiling point and boiling range	108 °C (226 °F) - lit.
g) Flash point	79 °C (174 °F) - closed cup
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	27 hPa at 32 °C (90 °F)
l) Vapour density	No data available
m) Relative density	0.97 g/cm <sup>3</sup> at 25 °C (77 °F)
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

No data available

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

Contains the following stabiliser(s):

Mequinol (200 ppm)

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Strong oxidizing agents, Mineral acids, Peroxides, Iron and iron salts., Copper, Aluminum, Brass, Free radical initiators, acids, Bases, Polymerizing initiators

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx)

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Mouse - 645 mg/kg (N-[(2-Methylpropoxy)methyl]acrylamide)

Inhalation: No data available

No data available

#### Skin corrosion/irritation

Skin - Rabbit (N-[(2-Methylpropoxy)methyl]acrylamide)

#### Serious eye damage/eye irritation

Eyes - Rabbit (N-[(2-Methylpropoxy)methyl]acrylamide)

#### Respiratory or skin sensitisation

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Formaldehyde)

IARC: 2A - Group 2A: Probably carcinogenic to humans (Acrylamide)

NTP: Known - Known to be human carcinogen (Formaldehyde)

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Acrylamide)

OSHA: OSHA specifically regulated carcinogen (Formaldehyde)

#### Reproductive toxicity

No data available

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

**Aspiration hazard**

No data available (N-[(2-Methylpropoxy)methyl]acrylamide)

**Additional Information**

RTECS: AS3630000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. (N-[(2-Methylpropoxy)methyl]acrylamide)

Stomach - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence (N-[(2-Methylpropoxy)methyl]acrylamide)

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available (N-[(2-Methylpropoxy)methyl]acrylamide)

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

No data available

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 2810      Class: 6.1      Packing group: III

Proper shipping name: Toxic, liquids, organic, n.o.s. (N-[(2-Methylpropoxy)methyl]acrylamide)

Poison Inhalation Hazard: No

**IMDG**

UN number: 2810      Class: 6.1      Packing group: III      EMS-No: F-A, S-A

Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S. (N-[(2-Methylpropoxy)methyl]acrylamide)

**IATA**

UN number: 2810      Class: 6.1      Packing group: III

Proper shipping name: Toxic liquid, organic, n.o.s. (N-[(2-Methylpropoxy)methyl]acrylamide)

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## 15. REGULATORY INFORMATION

### SARA 302 Components

	CAS-No.	Revision Date
Acrylamide	79-06-1	2008-11-03

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Acrylamide	79-06-1	2008-11-03
N-(Hydroxymethyl)acrylamide	924-42-5	2007-07-01
Formaldehyde	50-00-0	2007-07-01

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acrylamide	79-06-1	2008-11-03
iso-Butanol	78-83-1	2007-03-01
Formaldehyde	50-00-0	2007-07-01

### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
N-[(2-Methylpropoxy)methyl]acrylamide	16669-59-3	
Acrylamide	79-06-1	2008-11-03
N-(Hydroxymethyl)acrylamide	924-42-5	2007-07-01
iso-Butanol	78-83-1	2007-03-01
Formaldehyde	50-00-0	2007-07-01

### California Prop. 65 Components

, which is/are known to the State of California to cause cancer, and	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-09-28
N-(Hydroxymethyl)acrylamide	924-42-5	2007-09-28

, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> .	CAS-No.	Revision Date
Acrylamide	79-06-1	2007-09-28

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
H227	Combustible liquid.
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H302	Harmful if swallowed.
H302 + H312	Harmful if swallowed or in contact with skin.
H312	Harmful in contact with skin.
H312 + H332	Harmful in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H372	Causes damage to organs (/\$/*_ORG_REP_ORAL/\$/) through prolonged or repeated exposure if swallowed.
H402	Harmful to aquatic life.

#### **Further information**

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#### **Preparation Information**

Sigma-Aldrich Corporation  
 Product Safety – Americas Region  
 1-800-521-8956

Version: 6.0

Revision Date: 08/07/2018

Print Date: 11/20/2018