

SAFETY DATA SHEET

1. IDENTIFICATION

Product Name:	AEROTEX® IBMA Monomer
Synonyms:	None
Product Description:	N-isobutoxymethyl acrylamide
Molecular Formula:	C8H15O2N
Molecular Weight:	157
Intended/Recommended Use:	Process Chemical
Uses advised against:	This product should not be used in any consumer application nor in professional application involving a risk of exposure. Reason: Carcinogenic, Mutagenic and Sensitizing properties.

Allnex USA Inc., 9005 Westside Parkway, Alpharetta, Georgia 30009, USA

For Product and all Non-Emergency Information call your local Allnex contact point or contact us at <http://www.allnex.com/contact>

EMERGENCY PHONE (24 hours/day) - For emergency only involving spill, leak, fire, exposure or accident call:

+1-866-928-0789 (toll free) or +1-215-207-0061 (Carechem 24 - Allnex29003-NCEC)

See Section 16 for Emergency phone numbers for other regions.

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2. HAZARDS IDENTIFICATION

GHS Classification

Flammable Liquids Hazard Category 3

Carcinogenicity Hazard Category 1B

Germ Cell Mutagenicity Hazard Category 1B

Reproductive Toxicant Hazard Category 2

Acute Toxicity (Oral) Hazard Category 4

Acute Toxicity (Dermal) Hazard Category 3

Specific Target Organ Toxicity - Repeated Exposure Hazard Category 1

Skin Corrosion / Irritation Hazard Category 2

Serious Eye Damage / Eye Irritation Hazard Category 1

Skin Sensitizer Hazard Category 1A

Aquatic Environment Acute Hazard Category 3

LABEL ELEMENTS



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor
 May cause cancer
 May cause genetic defects
 Suspected of damaging fertility or the unborn child
 Harmful if swallowed
 Toxic in contact with skin
 Causes damage to organs through prolonged or repeated exposure
 Causes skin irritation
 Causes serious eye damage
 May cause an allergic skin reaction
 Harmful to aquatic life

Precautionary Statements

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Keep container tightly closed.
 Ground/Bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting/equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Wear protective gloves/protective clothing/eye protection/face protection.
 Obtain special instructions before use.
 Wash face, hands and any exposed skin thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Do not breathe dust/fume/gas/mist/vapours/spray.
 Contaminated work clothing should not be allowed out of the workplace.
 Avoid release to the environment.
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 In case of fire: Use CO₂, dry chemical, or foam to extinguish.
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 Rinse mouth.
 Specific treatment (see supplemental first aid instructions on this label).
 Take off immediately all contaminated clothing and wash it before reuse.
 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 or doctor/physician.
 Store in a well-ventilated place. Keep cool.
 Store locked up.
 Dispose of contents/container in accordance with local and national regulations.

Hazards Not Otherwise Classified (HNOC), Other Hazards

Polymerization may occur from excessive heat, contamination or exposure to direct sunlight.

3. COMPOSITION/INFORMATION ON INGREDIENTS**HAZARDOUS INGREDIENTS**

Component / CAS No.	%	GHS Classification
N-(Isobutoxymethyl) acrylamide 16669-59-3	75 - 82	Acute Tox. 4 (H302) Acute Tox. 3 (H311) Eye Irrit. 2 (H319) Aquatic Acute 3 (H402)
N-Methylolacrylamide 924-42-5	2 - 6	Carc. 1B (H350) Muta. 1B (H340) Repr. 2 (H361) Acute Tox. 3 (H301)

		STOT RE 1 (H372) Skin Sens. 1 (H317)
Acrylamide 79-06-1	2 - 6	Carc. 1B (H350) Muta. 1B (H340) Repr. 2 (H361f) Acute Tox. 3 (H301) Acute Tox. 4 (H312) Acute Tox. 4 (H332) STOT RE 1 (H372) Skin Irrit. 2 (H315) Eye Irrit. 2A (H319) Skin Sens. 1B (H317)
Isobutanol 78-83-1	< 5	Flam. Liq. 3 (H226) STOT SE 3 (H335) STOT SE 3 (H336) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
N,N`-Methylene-bisacrylamide 110-26-9	0 - 1.5	Carc. 1B (H350) Muta. 1B (H340) Repr. 2 (H361) Acute Tox. 3 (H301) Acute Tox. 4 (H312) STOT RE 1 (H372)
Formaldehyde 50-00-0	< 0.5	Carc. 1B (H350) Muta. 2 (H341) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 2 (H401)

The specific chemical identity and/or exact percentage of composition for one or more ingredients has been withheld as a trade secret.

Additional GHS classification or other information may be included in this section but has not been adopted by OSHA. See Section 16 for full text of H phrases.

4. FIRST AID MEASURES

First-aid Measures

Inhalation:

Remove to fresh air. If breathing is difficult, give oxygen. Obtain medical advice if there are persistent symptoms.

Skin Contact:

Remove contaminated clothing and shoes without delay. Wear impermeable gloves. Wash immediately with plenty of water. Pay particular attention to skin crevices, nail folds, etc. Do not reuse contaminated clothing without laundering. Do not reuse contaminated leatherware. Obtain medical attention.

Eye Contact:

Rinse immediately with plenty of water for at least 15 minutes. Obtain medical advice if there are persistent symptoms.

Ingestion:

If quantities greater than 15 cc are swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

Most Important Symptoms and Effects, Acute and Delayed

None known.

Immediate Medical Attention and Special Treatment**Notes To Physician:**

Either acute or chronic exposure may lead to weak or absent reflexes, positive Romberg's sign, loss of vibration and position senses and numbness and tingling of the limbs. An early sign of overexposure is peeling of the skin of the fingertips. Weekly examinations (by plant medical staff or supervisor) of the skin of hands and fingers for peeling is recommended. Evidence of peeling requires removal from possible exposure to acrylamide. Once the skin has returned to normal, the employee may be returned to normal duties. If the peeling should occur a second time, permanent removal is required.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media:**

Use water spray, alcohol foam, carbon dioxide or dry chemical to extinguish fires. Water stream may be ineffective.

Unsuitable Extinguishing Media:

full water jet.

Protective Equipment:

Firefighters, and others exposed, wear self-contained breathing apparatus. Wear full firefighting protective clothing. See SDS Section 8 (Exposure Controls/Personal Protection).

Special Hazards:

Keep containers cool by spraying with water if exposed to fire.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions:**

Where exposure level is known, wear approved respirator suitable for level of exposure. Where exposure level is not known, wear approved, positive pressure, self-contained respirator. In addition to the protective clothing/equipment in Section 8 (Exposure Controls/Personal Protection), wear impermeable boots.

Methods For Cleaning Up:

Remove sources of ignition. Cover spills with some inert absorbent material; sweep up and place in a waste disposal container. Flush spill area with water.

Environmental Precautions:

Avoid release to the environment.

References to other sections:

See Sections 7, 8 and 13 for additional information.

7. HANDLING AND STORAGE**HANDLING**

Precautions: Keep away from heat, sparks and open flame. - No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting and other equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid release to the environment. Do not breathe vapors or spray mist. Wear protective gloves/clothing and eye/face protection.

Special Handling Statements: Provide good ventilation of working area (local exhaust ventilation if necessary). During processing and handling of the product, comply with the indicative occupational exposure limit values. Avoid excessive heat, contamination or exposure to direct sunlight to prevent polymerization.

STORAGE

Areas containing this material should have fire safe practices and electrical equipment in accordance with applicable regulations and/or guidelines. Standards are primarily based on the material's flashpoint, but may also take into account properties such as miscibility with water or toxicity. All local and national regulations should be followed. In the Americas, National Fire Protection Association (NFPA) 30: Flammable and Combustible Liquids Code, is a widely used standard. NFPA 30 establishes storage conditions for the following classes of materials: Class I Flammable Liquids, Flashpoint <37.8 °C. Class II Combustible Liquids, 37.8 °C < Flashpoint <60 °C. Class IIIa Combustible Liquids, 60 °C < Flashpoint < 93 °C. Class IIIb Combustible Liquids, Flashpoint > 93 °C. Avoid storage temperatures in excess of 32.2 C (90 F).

Storage Temperature: Store at 4.4 - 32.2 °C 40 - 90 °F
Reason: Quality.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

Utilize a closed system process where feasible. Where this material is not used in a closed system, good enclosure and local exhaust ventilation should be provided to control exposure. After acrylamide is in solution, exposure to liquid and mist must be controlled.

Respiratory Protection:

For operations where inhalation exposure can occur use an approved respirator. Recommendations are listed below. Other protective respiratory equipment may be used based on user's own risk assessment. Recommended respirators include those certified by NIOSH.

Recommended:

Full Face Mask with organic vapor cartridge, Type A filter (BP >65°C)

Eye Protection:

Wear eye/face protection, chemical goggles, and face shield. Wear hood giving complete protection to head, face and neck. Provide eye wash fountain and safety shower in close proximity to points of potential exposure.

Skin Protection:

Wear the following to prevent skin contact: impervious rubber or plastic gloves, rubber shoes and long-sleeved coveralls which are provided clean daily. Wash gloves thoroughly before removing and discard gloves that are contaminated on the inside.

Hand Protection:

Wear protective gloves. Recommendations are listed below. Other protective materials may be used based on user's own risk assessment. Barrier creams may help to protect the exposed areas of the skin, they should however not be applied once exposure has occurred. Replace gloves immediately when torn or any change in appearance (dimension, color, flexibility etc.) is noticed.

Gloves for repeated or prolonged exposure - non exhaustive list:

Nitrile rubber (NBR), thickness: > 0.38 mm, break through time: > 480 min

Gloves for short term exposure/splash protection - non exhaustive list:

Nitrile rubber (NBR), thickness: 0.12 mm, break through time: up to 120 min

The chemical resistance depends on the type of product and amount of product on the glove. Therefore gloves need to be changed when in contact with chemicals.

Not suitable gloves - non exhaustive list:

Natural rubber (NRL), thickness: 0.12 mm

Due to many conditions (e.g. temperature, abrasion) the practical usage of a chemical protective glove in practice may be much shorter than the permeation time determined through testing. Use PE gloves as under gloves for difficult situations like for instance: high exposure, unknown composition or unknown properties of the chemicals.

Additional Advice:

Before eating, drinking, or smoking, wash face and hands thoroughly with soap and water. Food, beverages, and tobacco products should not be carried, stored, or consumed where this material is in use. It is recommended that a shower be taken after completion of workshift especially if significant contact has occurred. Work clothing should then be laundered prior to reuse. Street clothing should be stored separately from work clothing and protective equipment. Work clothing and shoes should not be taken home.

Exposure Limit(s)

924-42-5 N-Methylolacrylamide

OSHA (PEL): 1.0 mg/m³ (Allnex)
1 mg/m³

ACGIH (TLV): Not established
Other Value: 1.0 mg/m³ (Allnex)
1 mg/m³

79-06-1 Acrylamide

OSHA (PEL): 0.3 mg/m³ (TWA)
(skin)

ACGIH (TLV): (skin)
0.03 mg/m³ inhalable fraction and vapor (TWA)
Other Value: Not established

78-83-1 Isobutanol

OSHA (PEL): 100 ppm (TWA)
300 mg/m³ (TWA)

ACGIH (TLV): 50 ppm (TWA)
Other Value: Not established

110-26-9 N,N'-Methylene-bisacrylamide

OSHA (PEL): 5 mg/m³ (Allnex)
ACGIH (TLV): Not established
Other Value: 5 mg/m³ (Allnex)

50-00-0 Formaldehyde

OSHA (PEL): 0.75 ppm (TWA)
2 ppm (STEL)
2 ppm STEL 15 min
0.5 ppm Action Level
0.75 ppm TWA

ACGIH (TLV): 0.3 ppm (STEL)
0.1 ppm (TWA)

Other Value: Not established

Biological Exposure Limit(s)

No values have been established.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color: clear
Appearance: viscous liquid
Odor: characteristic
Boiling Point: 108 °C 226 °F (value for isobutanol)

Melting Point:	-80 °C -112 °F Glass transition point
Vapor Pressure:	0.159 Pa @ 25 °C
Specific Gravity/Density:	0.97 g/cm ³ @ 23 °C
Vapor Density:	Not available
Percent Volatile (% by wt.):	< 5
pH:	6 - 7
Saturation In Air (% By Vol.):	2.6 @ 32 °C 760 mm Hg
Evaporation Rate:	< 1 (Butyl acetate = 1)
Solubility In Water:	13.5 g/L @ 25 °C
Volatile Organic Content:	Not available
Flash Point:	56 °C 133 °F Closed Cup DIN EN ISO 2719
Flammable Limits (% By Vol):	Lower: 1.2 Upper: 10.9 (values for isobutanol)
Autoignition Temperature:	Not available
Decomposition Temperature:	Not available
Partition coefficient (n-octanol/water):	0.84 @ 25 °C
Odor Threshold:	Not available
Viscosity (Kinematic):	Not available
Viscosity (Dynamic):	- 80 mPa.s @ 25 °C Non viscous liquid
Flammability:	Normal combustion
Oxidizing Properties:	No

10. STABILITY AND REACTIVITY

Reactivity:	No information available
Stability:	Stable.
Conditions To Avoid:	Unstable if not maintained under the following recommended conditions: avoid temperatures above 32 C (90 F), initiators such as bisulfites, peroxides, reducing agents, oxidizing agents and redox systems, prevent loss of dissolved oxygen.
Polymerization:	May occur
Conditions To Avoid:	This product can polymerize if not maintained under the following recommended conditions: avoid temperatures above 32 C (90 F), initiators such as bisulfites, peroxides, reducing agents, oxidizing agents and redox systems, prevent loss of dissolved oxygen.
Materials To Avoid:	Mineral acids, peroxides, free radical generators.
Hazardous Decomposition Products:	Ammonia (NH ₃) Carbon dioxide Carbon monoxide (CO) oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Oral, Skin, Eyes, Respiratory System.

Acute toxicity - oral: Harmful if swallowed

Acute toxicity - dermal: Toxic in contact with skin

Acute toxicity - inhalation: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin corrosion / irritation: Causes skin irritation

Serious eye damage / eye irritation: Causes serious eye damage

Respiratory sensitization: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

Skin sensitization: May cause an allergic skin reaction

Carcinogenicity: May cause cancer

Germ cell mutagenicity: May cause genetic defects

Reproductive toxicity: Suspected of damaging fertility or the unborn child

Specific target organ toxicity (STOT) - single exposure: Not Classified. - Based on available data and/or professional judgment, the classification criteria are not met.

Specific target organ toxicity (STOT) - repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Route of Exposure: oral, dermal, inhalation **Affected Organs:** Peripheral nervous system

Aspiration hazard: Not Classified - Based on available data and/or professional judgment, the classification criteria are not met.

PRODUCT TOXICITY INFORMATION

ACUTE TOXICITY DATA

oral (gavage)	rat	Acute LD50	989 mg/kg
dermal	rat	Acute LD50	857 mg/kg
inhalation	rat	Acute LC50 4 hr	> 5 mg/l estimated

LOCAL EFFECTS ON SKIN AND EYE

Acute Irritation	dermal	rabbit	Irritating (estimated)
Acute Irritation	eye	rabbit	Causes serious damage

ALLERGIC SENSITIZATION

Sensitization	dermal	Sensitizing
Sensitization	inhalation	No data

SUBACUTE/SUBCHRONIC TOXICITY

oral (gavage)	rat	SubAcute 42 day	150 mg/kg NOAEL
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Specific target organ toxicity (repeated exposure): Causes damage to peripheral nervous system through prolonged or repeated exposure by inhalation, ingestion and skin contact. .

GENOTOXICITY

Assays for Gene Mutations

Ames Salmonella Assay	Salmonella Typhimurium	Not mutagenic
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Assays for Chromosomal Aberrations

In Vitro Chromosomal Aberrations	CHO cell	Clastogenic
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REPRODUCTIVE TOXICITY

Contains a known or suspected reproductive toxin

CARCINOGENICITY

Contains a known or suspected carcinogen

HAZARDOUS INGREDIENT TOXICITY DATA

N-(Isobutoxymethyl) acrylamide (IBMA) has acute oral (rat) and dermal (rabbit) LD50 values of 989 mg/kg and 857 mg/kg mg/kg, respectively. IBMA can lead to skin irritation and irreversible eye damage. IBMA was negative in the Ames assay, but did induce chromosomal aberrations in chinese hamster ovary cells in vitro. Because of the presence of impurities such as acrylamide, formaldehyde or N-Methylolacrylamide, IBMA is suspected of having the potential to be mutagenic, carcinogenic and lead to fertility issues. IBMA is considered to have a strong sensitization potential.

The acute oral (rat) and acute dermal (rabbit) LD50 values for N-methylolacrylamide (NMA) are >200 - <400 mg/kg and 2250 mg/kg, respectively. The acute inhalation value (LC0, 1 hr, rat) is >12 mg/l. NMA was not irritating to the skin of rabbits in a standard OECD 404 test, however, moderate skin irritation was produced during testing in rabbits at dermal doses of 2-16 g/kg. Very minimal to mild eye irritation was produced during primary eye irritation testing in rabbits. NMA is considered a skin sensitizer based on tests in guinea pigs. Neurotoxicity can result after a single ingestion of N-methylolacrylamide, but is more likely to occur after ingestion of small amounts over a period of several days or weeks. Signs and symptoms include increasing sweating of the hands and feet, numbness, tingling and weakness in the extremities, unsteady gait and decreased reflexes. N-methylolacrylamide caused peripheral neuropathy in a 90-day repeated dose drinking water study in rats. N-methylolacrylamide is readily absorbed through the unbroken skin. Prolonged or repeated dermal exposure may cause signs and symptoms of neurotoxicity as described above but is preceded by peeling and redness of the skin of the hands and feet, the usual areas of exposure. Airborne NMA is absorbed through the lungs and upon overexposure causes neurotoxicity. Although NMA was negative for mutagenicity in an Ames test, it tested positive in an in vitro chromosome aberration study and an in vivo dominant lethal assay indicating its potential to induce mutations. The National Toxicology Program (NTP) has completed lifetime carcinogenicity studies of N-methylolacrylamide in rats and mice. Doses of up to 12 mg/kg/day in rats produced no evidence of carcinogenic activity. Doses of up to 50 mg/kg/day in mice produced increased incidences of tumors of the lung, liver, ovary, and the harderian gland, an accessory gland of the eye. N-Methylolacrylamide is a chemical known to the State of California to cause cancer. Based on a 2-generation drinking water study in rats on a structurally similar substance (acrylamide), N-methylolacrylamide is expected to cause adverse effects on fertility.

Acrylamide (100% - dry crystalline form), has acute oral (rat) and dermal (rabbit) LD50 values of 294 mg/kg and 252 mg/kg, respectively. Test results for Acrylamide, 50% Aqueous Solution show an acute dermal (rabbit) LD50 value of 1,747 mg/kg. In an acute oral (rat) LD50 limit test, Acrylamide 50% Aqueous Solution showed a result of <500 mg/kg. Based on this and previous test results, we estimate the acute oral (rat) LD50 to be between 200-800 mg/kg. In an acute inhalation study, rats exposed to aerosolized mist of 50% acrylamide (12.1 mg/L) for 1-hour exhibited no signs of irritation or systemic toxicity. The acute 4-hour inhalation LC50 (rat) is calculated to be greater than 3 mg/L. Acrylamide caused allergic skin reactions when tested in guinea pigs. Irritation studies in animals showed moderate eye irritation and minimal to no skin irritation for Acrylamide (100% dry crystalline form). For Acrylamide 50% Aqueous Solution, animal irritation studies showed mild eye irritation and minimal to no skin irritation. Acrylamide was negative in the Ames assay both with and without metabolic activation. An initial two year study in rats where acrylamide was administered in the drinking water indicated that a variety of tumors could be produced at doses of 2 mg/kg/day. A lifetime study has been conducted in which male Fischer rats received 0.1, 0.5 and 2 mg/kg/day acrylamide and female Fischer rats received 1 and 3 mg/kg/day acrylamide in their drinking water. The only malignant tumor significantly increased in this second study was testicular mesothelioma, which is peculiar to rats. Non-malignant tumors of the thyroid were increased at doses above 0.5 mg/kg. Mammary tumors were statistically increased but were not above the historical average and thus are of questionable toxicological significance. Acrylamide induced male reproductive toxicity has been demonstrated in Long-Evans rats where given greater than equal to 15 mg/kg/day acrylamide orally by gavage for five consecutive days. In this study, the males receiving greater than equal to 15 mg/kg/day acrylamide had a reduced fertility index (number of pregnant/number of sperm positive females). Contact with acrylamide by any route of exposure (eyes/skin, inhalation or ingestion) may cause nervous system effects. These effects can result from a single overexposure but are more likely to occur after repeated exposures to small amounts over a period of several days or weeks. Signs and symptoms of exposure include increased sweating of the hands and feet, numbness, tingling and weakness in the extremities, unsteady gait and decreased reflexes. Acrylamide is readily absorbed through unbroken skin. If the exposure route is dermal, the signs and symptoms described above may be preceded by peeling and redness of skin on the areas of exposure, normally the hands and feet. Acrylamide tends to sublime (goes directly from solid to vapor form) which may lead to inhalation exposure. Acrylamide can also be absorbed through the lung and eyes and overexposure will produce the signs and symptoms of neurotoxicity as described above. If exposure is terminated promptly when signs and

symptoms of acrylamide overexposure appear, an early recovery may be expected. If overexposure is extreme or allowed to continue until more serious manifestations of poisoning develop, recovery may be greatly prolonged or not take place. Acrylamide is moderately toxic by ingestion or dermal contact. Overexposure by these routes may result in death. Repeated or prolonged dermal contact with this material may cause allergic skin reactions. Direct contact with this material may cause mild to moderate eye and skin irritation. The potential carcinogenicity of acrylamide has been investigated in humans. An epidemiological study involving 8,854 workers, 2,293 of whom were exposed to acrylamide, did not show any significant increase in cancer mortality related to acrylamide exposure.

Isobutanol has acute oral (rat) and dermal (rabbit) LD50 values of 2.46 g/kg and 2.46 - 3.4 g/kg, respectively. The LC50 (rat) following a 4-hour inhalation exposure is >8000 ppm (24.24 mg/L). Acute overexposure to isobutanol vapor can cause irritation to the eyes (severe), skin (moderate), and mucous membranes, as well as, central nervous system depression. Literature reports that acute oral exposure to isobutanol has produced CNS effects in animals. Direct contact with isobutanol may cause severe eye and mild to moderate skin irritation.

N,N'-Methylenebisacrylamide has an acute oral (rat) LD50 of 50-300 mg/kg. The acute dermal LD50 (rabbit) value of 710-1851 mg/kg has been derived from a structural analogue. No mortality was observed in a 1h inhalation study at 12.1 mg/L on the same structural analogue. No skin nor eye irritation was observed in in vitro studies. Sensitization was not observed in a local lymph node assay in mice. N,N'-Methylenebisacrylamide is suspected to cause genetic defects, tumour formation and teratogenic effects. Also neurotoxicity was observed in a 2-years drinking water study conducted on a structural analogue.

Formaldehyde has oral (rat) and dermal (rabbit) LD50 values of 640 mg/kg and 270 mg/kg, respectively. 50% of the mice had reduced respiration rate following a 10 minutes inhalation exposure at a concentration of 4.9 ppm. Irritation of the nose and throat has been observed in people exposed to formaldehyde vapor levels in excess of 1 ppm. Normal breathing may be seriously impaired and serious lung damage can occur. Formaldehyde has been reported to cause pulmonary hypersensitivity in some individuals who were exposed to concentrations known to cause irritation; however, no pulmonary sensitization has been demonstrated in laboratory animal studies. Formaldehyde solutions can cause severe eye and skin irritation. Repeated skin exposure to solutions of 2% or more formaldehyde has caused allergic skin reactions. Formaldehyde was found to be weakly genotoxic in a number of in vitro genotoxicity tests and positive in certain in vivo genotoxicity studies. Formaldehyde did not cause birth defects in rats inhaling concentrations up to 10 ppm. However, a study using higher levels did show a slight but statistically significant reduction in male fetal body weight. Lifetime inhalation of formaldehyde vapor at concentrations above 5 ppm for 6 hours per day, caused nasal tumors in laboratory animals. The International Agency for Research on Cancer (IARC) has classified formaldehyde as a Group 1 (known) human carcinogen based on epidemiological evidence linking formaldehyde exposure to the occurrence of nasopharyngeal cancer, a rare type of cancer. IARC also found limited evidence of cancer of the nasal cavity and paranasal sinuses and insufficient evidence for an association between formaldehyde and leukemia. Inhalation caused liver and kidney damage in laboratory animal tests.

Carcinogenicity

This product contains one or more Carcinogen Chemical(s) in accordance with IARC (International Agency for Research on Cancer), NTP (National Toxicology Program), ACGIH (American Conference of Governmental Industrial Hygienists).

Component / CAS No.	Carcinogen
Acrylamide 79-06-1	IARC 2A NTP ACGIH A2
Formaldehyde 50-00-0	IARC 1 NTP ACGIH A2



WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov

12. ECOLOGICAL INFORMATION

TOXICITY, PERSISTENCE AND DEGRADABILITY, BIOACCUMULATIVE POTENTIAL, MOBILITY IN SOIL,

OTHER ADVERSE EFFECTS

Overall Environmental Toxicity: Harmful to aquatic life.

This material is readily biodegradable.

FISH TEST RESULTS

Test: Acute toxicity, freshwater (OECD 203)

Duration: 96 hr.

Species: Rainbow Trout (*Oncorhynchus mykiss*)

75 mg/l LC50

DEGRADATION

Test: Closed Bottle (OECD 301D)

Duration: 28 day **Procedure:** Ready biodegradability

77.8 %

RESULTS OF PBT AND vPvB ASSESSMENT

This product does not meet the criteria for PBT (Persistent, Bioaccumulative and Toxic substance) or for vPvB (Very Persistent and Very Bioaccumulative).

HAZARDOUS INGREDIENT TOXICITY DATA

Component / CAS No.	Toxicity to Fish
N-(Isobutoxymethyl) acrylamide (16669-59-3)	LC50 = 75 mg/L - <i>Oncorhynchus mykiss</i> - 96 hrs (measured)
N-Methylolacrylamide (924-42-5)	LC50 = 890 mg/L - <i>Oncorhynchus mykiss</i> - 96hrs
Acrylamide (79-06-1)	LC50 103 - 115 mg/L - <i>Pimephales promelas</i> (96h) LC50 137 - 191 mg/L - <i>Oncorhynchus mykiss</i> (96h) LC50 74 - 150 mg/L - <i>Oncorhynchus mykiss</i> (96h) LC50 81 - 150 mg/L - <i>Lepomis macrochirus</i> (96h) LC50 = 124 mg/L - <i>Pimephales promelas</i> (96h)
Isobutanol (78-83-1)	LC50 1120 - 1520 mg/L - <i>Oncorhynchus mykiss</i> (96h) LC50 1370 - 1670 mg/L - <i>Pimephales promelas</i> (96h) LC50 1480 - 1730 mg/L - <i>Lepomis macrochirus</i> (96h)
N,N'-Methylene-bisacrylamide (110-26-9)	LC50 > 100 mg/l - <i>Danio rerio</i> (96h)
Formaldehyde (50-00-0)	LC50 = 6.7 mg/L - <i>Morone saxatilis</i> (96h)

Component / CAS No.	Toxicity to Water Flea
N-(Isobutoxymethyl) acrylamide (16669-59-3)	EC50 = 46.7 mg/L - <i>Daphnia magna</i> - 48 hrs (QSAR)
N-Methylolacrylamide (924-42-5)	EC50 = 98 mg/L - <i>Daphnia magna</i> - 48hrs

Acrylamide (79-06-1)	EC50 = 98 mg/L - Daphnia magna (48h)
Isobutanol (78-83-1)	EC50 = 1300 mg/L - Daphnia magna (48h)
N,N'-Methylene-bisacrylamide (110-26-9)	LC50 > 100 mg/l - Daphnia magna (48h)
Formaldehyde (50-00-0)	EC50 = 5.8 mg/L - Daphnia pulex (48h)

Component / CAS No.	Toxicity to Algae
N-(Isobutoxymethyl) acrylamide (16669-59-3)	EC50 > 100 mg/L - green algae - 72hrs (QSAR)
N-Methylolacrylamide (924-42-5)	EC50 > 100 mg/L - Pseudokirchneriella subcapitata - 72hrs NOEC = 32 mg/L - Pseudokirchneriella subcapitata - 72hrs
Acrylamide (79-06-1)	Not available
Isobutanol (78-83-1)	Not available
N,N'-Methylene-bisacrylamide (110-26-9)	Not available
Formaldehyde (50-00-0)	EC50 = 4.89 mg/L - Desmodesmus subspicatus (72hrs)

Component / CAS No.	Partition coefficient
N-(Isobutoxymethyl) acrylamide (16669-59-3)	Not available
N-Methylolacrylamide (924-42-5)	-1.81 (calculated)
Acrylamide (79-06-1)	-1.24
Isobutanol (78-83-1)	0.79
N,N'-Methylene-bisacrylamide (110-26-9)	Not available
Formaldehyde (50-00-0)	0.35

13. DISPOSAL CONSIDERATIONS

The information on RCRA waste classification and disposal methodology provided below applies only to the product, as supplied. If the material has been altered or contaminated, or it has exceeded its recommended shelf life, the guidance may be inapplicable. Hazardous waste classification under federal regulations (40 CFR Part 261 et seq) is dependent upon whether a material is a RCRA "listed hazardous waste" or has any of the four RCRA "hazardous waste characteristics." Refer to 40 CFR Part 261.33 to determine if a given material to be disposed of is a RCRA "listed hazardous waste"; information contained in Section 15 of this SDS is not intended to indicate if the product is a "listed hazardous waste." RCRA Hazardous Waste Characteristics: There are four characteristics defined in 40 CFR Section 261.21-61.24: Ignitability, Corrosivity, Reactivity, and Toxicity. To determine Ignitability, see Section 9 of this SDS (flash point). For Corrosivity, see Sections 9 and 14 (pH and DOT corrosivity). For Reactivity, see Section 10 (incompatible materials). For Toxicity, see Section 3 (composition). Federal regulations are subject to change. State and local requirements, which may differ from or be more stringent than the federal regulations, may also apply to the classification of the material if it is to be disposed. The Company encourages the recycle, recovery and reuse of materials, where permitted, as an alternate to disposal as a waste. The Company recommends that organic materials classified as RCRA hazardous wastes be disposed of by thermal treatment or incineration at EPA approved facilities. The Company has provided the foregoing for information only; the person generating the waste is responsible for determining the waste classification and disposal method.

14. TRANSPORT INFORMATION

This section provides basic shipping classification information. Refer to appropriate transportation regulations for specific requirements.

US DOT

Dangerous Goods? X

PROPER SHIPPING NAME: FLAMMABLE LIQUID, TOXIC, N.O.S.

Hazard Class: 3

Subsidiary Class: 6.1

Packing Group: III

UN/ID Number: UN1992

Transport Label Required: Flammable Liquid

Toxic

TECHNICAL NAME (N.O.S.): ISOBUTANOL, ACRYLAMIDE

Component / CAS No.

Hazardous Substances/Reportable Quantity of Product (lbs)

Formaldehyde

20408

Comments:

Flammable liquids with a flash point at or above 38° C (100° F) and not meeting the definition of any other hazard class may be reclassified as a Combustible liquid except for transport by vessel or aircraft. If reclassified, these Combustible liquids are not regulated in non-bulk packagings.

Hazardous Substances/Reportable Quantities - DOT requirements specific to Hazardous Substances only apply if the quantity in one package equals or exceeds the product reportable quantity.

TRANSPORT CANADA

Dangerous Goods? X

PROPER SHIPPING NAME: FLAMMABLE LIQUID, TOXIC, N.O.S.

Hazard Class: 3

Subsidiary Class: 6.1

Packing Group: III

UN Number: UN1992

Transport Label Required: Flammable Liquid

Toxic

TECHNICAL NAME (N.O.S.): ISOBUTANOL, ACRYLAMIDE

ICAO / IATA

Dangerous Goods? X

UN PROPER SHIPPING NAME: FLAMMABLE LIQUID, TOXIC, N.O.S.

Transport Hazard Class: 3

Subsidiary Class: 6.1

Packing Group: III

UN Number: UN1992

Transport Label Required: Flammable Liquid

Toxic

TECHNICAL NAME (N.O.S.): ISOBUTANOL, ACRYLAMIDE

IMO

Dangerous Goods? X

UN PROPER SHIPPING NAME: FLAMMABLE LIQUID, TOXIC, N.O.S.

Transport Hazard Class: 3

Subsidiary Class: 6.1

UN Number: UN1992

Packing Group: III

Transport Label Required: Flammable Liquid

Toxic

TECHNICAL NAME (N.O.S.): ISOBUTANOL, ACRYLAMIDE

15. REGULATORY INFORMATION

Inventory Information

United States (USA): All components of this product are designated as “Active” on the TSCA Inventory or are not required to be listed.

Canada: All components of this product are included on the Domestic Substances List (DSL) or are not required to be listed on the DSL.

European Economic Area (including EU): When purchased and shipped from an Allnex legal entity based in the EEA (EU or Norway), this product is compliant with the registration of the REACH Regulation (EC) No. 1907/2006 as all its components are either excluded, exempt and/or registered.

Australia: All components of this product are included in the Australian Inventory of Industrial Chemicals (AIIC) or are not required to be listed on AIIC.

New Zealand: This product is approved or exempt under the Hazardous Substances and New Organisms (HSNO) Act.

China: All components of this product are included on the Chinese inventory or are not required to be listed on the Chinese inventory.

Japan: One or more components of this product are NOT included on the Japanese (ENCS and/or ISHL) inventories.

Korea: All components of this product are included on the Korean (ECL) inventory or are not required to be listed on the Korean inventory. When purchased from Allnex Korea or Chemart distributor this product is compliant with the ARECs (the Act on the Registration and Evaluation, etc. of Chemical Substances). All its components are either excluded, exempt, pre-notified and/or registered. When purchased from another allnex entity, please contact PSRA-KREACH@allnex.com to check the possibility to be covered by our Only Representative.

Philippines: One or more components of this product are NOT included on the Philippine (PICCS) inventory.

Taiwan: All components of this product are included in the Taiwan chemical substance inventory or are not required to be listed on the Taiwan chemical substance inventory (TCSI).

Switzerland: All components of this product are exempt from the new substance notification requirements for Switzerland (SR 813.11 art. 24-26).

Turkey: When purchased directly from Allnex by a Turkish legal entity, this product is compliant with the PRE-registration requirements of KKDIK as all its components are either pre-registered, excluded and/or exempt.

OTHER ENVIRONMENTAL INFORMATION

The following components of this product may be subject to reporting requirements pursuant to Section 313 of CERCLA (40 CFR 372), Section 12(b) of TSCA, or may be subject to release reporting requirements (40 CFR 307, 40 CFR 311, etc.) See Section 13 for information on waste classification and waste disposal of this product.

Component / CAS No.	%	TPQ (lbs)	RQ(lbs)	S313	TSCA 12B
N-Methylolacrylamide 924-42-5	2 - 6	None	0	Yes	No
Acrylamide 79-06-1	2 - 6	1000 10000	5000	Yes	No

Formaldehyde 50-00-0	< 0.5	500	100	Yes	No
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PRODUCT HAZARD CATEGORY UNDER SECTIONS 311 AND 312 OF EPCRA

Physical Hazards

Flammable (gases, aerosols, liquids, or solids)

Health Hazards

Carcinogenicity

Acute toxicity (any route of exposure)

Reproductive toxicity

Skin Corrosion or Irritation

Respiratory or Skin Sensitization

Serious eye damage or eye irritation

Specific target organ toxicity (single or repeated exposure)

Germ cell mutagenicity

16. OTHER INFORMATION

NFPA Hazard Rating (National Fire Protection Association)

Health: 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

Fire: 2 - Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.

Instability: 1 - Materials that in themselves are normally stable, but that can become unstable at elevated temperatures and pressures.

Reasons for Issue: Revised Section 3

Date Prepared: 09/17/2021

Date of last significant revision: 09/17/2021

Component - Hazard Statements

N-(Isobutoxymethyl) acrylamide

H302 - Harmful if swallowed.

H311 - Toxic in contact with skin.

H319 - Causes serious eye irritation.

H402 - Harmful to aquatic life.

N-Methylolacrylamide

H350 - May cause cancer.

H340 - May cause genetic defects.

H361 - Suspected of damaging fertility or the unborn child.

H301 - Toxic if swallowed.

H372 - Causes damage to organs through prolonged or repeated exposure.

H317 - May cause an allergic skin reaction.

Acrylamide

H301 - Toxic if swallowed.

H312 - Harmful in contact with skin.

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H319 - Causes serious eye irritation.

H332 - Harmful if inhaled.

H340 - May cause genetic defects.

H350 - May cause cancer.

H372 - Causes damage to organs through prolonged or repeated exposure.

H361f - Suspected of damaging fertility.

Isobutanol

H226 - Flammable liquid and vapor.

H315 - Causes skin irritation.

H318 - Causes serious eye damage.

H335 - May cause respiratory irritation.

H336 - May cause drowsiness or dizziness.

N,N'-Methylene-bisacrylamide

H350 - May cause cancer.

H340 - May cause genetic defects.

H361 - Suspected of damaging fertility or the unborn child.

H301 - Toxic if swallowed.

H312 - Harmful in contact with skin.

H372 - Causes damage to organs through prolonged or repeated exposure.

Formaldehyde

H301 - Toxic if swallowed.

H311 - Toxic in contact with skin.

H314 - Causes severe skin burns and eye damage.

H317 - May cause an allergic skin reaction.

H318 - Causes serious eye damage.

H331 - Toxic if inhaled.

H341 - Suspected of causing genetic defects.

H350 - May cause cancer.

H401 - Toxic to aquatic life.

Emergency phone numbers for other regions

Asia Pacific

Australia: +61 1800 022 037 (Allnex Australia)

China (PRC): +86(0)532 8388 9090 (NRCC)

India: 000 800 100 7479 (toll free) or +65 3158 1198 (Carechem 24)

Indonesia: 007 803 011 0293 (Carechem 24)

Japan: +81 345 789 341 (Carechem 24)

Korea: +82 2 3479 8401 (Carechem 24)

Malaysia: +60 3 6207 4347 (Carechem 24)

New Zealand: +64 0800 803 002 (Allnex New Zealand)

Philippines: +63 2 231 2149 (Carechem 24)

Taiwan: +886 2 8793 3212 (Carechem 24)

Vietnam: +84 8 4458 2388 (Carechem 24)

All Others: +65 3158 1074 (Carechem 24)

Europe

+44 (0) 1235 239 670 (Carechem 24)

Middle East, Africa

+44 (0) 1235 239 671 (Carechem 24)

Latin America

Brazil: +55-800-707-7022 (toll free) or +55-11-98149-0850 (Suatrans 24)

Chile: +56 2 2582 9336 (Carechem 24)

Mexico and all others: +52-555-004-8763 (Carechem 24)

Prepared By: Product Stewardship & Regulatory Affairs Department, <http://www.allnex.com/contact>

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