

SAFETY DATA SHEET

A Component, all Isocyanates, excluding Aquacast

Section 1. Identification

GHS product identifier : A COMPONENT
Product code : All Isocyanates, excluding Aquacast System
Other means of identification : Not available.
Product type : Liquid.
Material uses : Component of a Polyurethane System
Supplier's details : UTAH FOAM PRODUCTS, INC.
3609 South 700 West
Salt Lake City, UT 84119
801-269-0600

UTAH FOAM PRODUCTS, INC.
295 West 400 South
Nephi, UT 84648
435-623-1515

e-mail address of person responsible for this SDS : CANDACE@UTAHFOAM.COM

Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY: INHALATION - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : Harmful if inhaled.
Causes skin and eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.

Section 2. Hazards identification

Precautionary statements : Wear protective gloves: > 8 hours (breakthrough time): butyl rubber, Ethyl Vinyl Alcohol Laminate (EVAL). Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification : Not available.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	%	CAS number
Isocyanic acid, polymethylenepolyphenylene ester	60 - 100	9016-87-9
Diphenylmethane 4,4'-diisocyanate	30 - 60	101-68-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. Get medical attention immediately. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is laboured, oxygen should be administered by qualified personnel.
- Skin contact** : After contact with skin, wash immediately with plenty of warm soapy water: Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. An MDI study has demonstrated that a polyglycol-based skin cleanser (such as D-Tam™, PEG-400) or corn oil may be more effective than soap and water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Provided the patient is conscious, wash out mouth with water. Get medical attention if symptoms appear.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes eye irritation.

Section 4. First aid measures

- Inhalation** : Harmful if inhaled. May cause respiratory irritation. This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons. LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.
- Skin contact** : Causes skin irritation. May cause sensitization by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.
- Ingestion** : Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Symptomatic treatment and supportive therapy as indicated. Following severe exposure the patient should be kept under medical review for at least 48 hours.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Flash point** : Closed cup: >150°C (>302°F)
Open cup: 230°C (446°F)

Extinguishing media

- Suitable extinguishing media** : Foam, CO2 or dry powder.
- Unsuitable extinguishing media** : Water may be used if no other available and then in copious quantities. Reaction between water and hot isocyanate may be vigorous. Prevent washings from entering water courses, keep fire exposed containers cool by spraying with water.

Section 5. Fire-fighting measures

- Specific hazards arising from the chemical** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous thermal decomposition products** : Combustion products may include: carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN.
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. PVC boots, gloves, safety helmet and protective clothing should be worn.
- Remark** : Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Containers may burst if overheated.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods and materials for containment and cleaning up** : If the product is in its solid form: Spilled MDI flakes should be picked up carefully. The area should be vacuum cleaned to remove remaining dust particles completely. If the product is in its liquid form: Absorb spillages onto sand, earth or any suitable adsorbent material. Leave to react for at least 30 minutes. Shovel into open-top drums for further decontamination. Wash the spillage area with water. Test atmosphere for MDI vapour. Neutralise small spillages with decontaminant. Remove and dispose of residues. The compositions of liquid decontaminants are given in Section 16. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** :

Section 7. Handling and storage

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Keep container tightly closed in a cool, well-ventilated place. Keep away from moisture. Due to reaction with water producing CO₂-gas, a hazardous build-up of pressure could result if contaminated containers are re-sealed. Do not reseal contaminated containers. Uncontaminated containers, free of moisture, may be resealed only after placing under a nitrogen blanket. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Unsuitable containers: Do not store in containers made of copper, copper alloys or galvanized surfaces.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
4,4'-Methylenediphenyl diisocyanate	ACGIH TLV (United States, 6/2013). TWA: 0.005 ppm 8 hours. OSHA PEL (United States, 2/2013). CEIL: 0.02 ppm CEIL: 0.2 mg/m ³

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Diisocyanates can only be smelled if the occupational exposure limit has been exceeded considerably.

Medical supervision of all employees who handle or come in contact with respiratory sensitizers is recommended. Personnel with a history of asthma-type conditions, bronchitis or skin sensitisation conditions should not work with MDI based products. The Occupational Exposure Limits listed do not apply to previously sensitised individuals. Sensitised individuals should be removed from any further exposure.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Hand protection** : Use chemical resistant gloves classified under Standard EN374: protective gloves against chemicals and microorganisms. Examples of glove materials that might provide suitable protection include :Butyl rubber, Chlorinated polyethylene, Polyethylene, Ethyl vinyl alcohol copolymers laminated ("EVAL"), Polychloroprene (Neoprene*), Nitrile/butadiene rubber ("nitrile" or "NBR"), Polyvinyl chloride ("PVC" or "vinyl"), Fluoroelastomer (Viton*).
- When prolonged or frequently repeated contact may occur, a glove with protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN374) is recommended.
- Contaminated gloves should be decontaminated and disposed of.
Notice: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all requisite workplace factors such as, but not limited to : other chemicals that may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), as well as instructions/ specifications provided by the glove supplier. Protective gloves should be worn when handling freshly made polyurethane products to avoid contact with trace residual materials which may be hazardous in contact with skin.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Overall (preferably heavy cotton) or Tyvek-Pro Tech 'C' , Tyvek-Pro 'F' disposable coverall.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Thermal hazards** : Not available.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point/Freezing point** : Not available.
- Boiling/condensation point** : >300°C decomposes
- Flash point** : Closed cup: >150°C (>302°F)
Open cup: 230°C (446°F)
- Evaporation rate** : Not available.

Section 9. Physical and chemical properties

Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: Not available.
Solubility in water	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: >600°C
Decomposition temperature	: Not available.
Viscosity	: Not available.

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: Stable at room temperature.
Possibility of hazardous reactions	: Reaction with water (moisture) produces CO ₂ -gas. Exothermic reaction with materials containing active hydrogen groups. The reaction becomes progressively more vigorous and can be violent at higher temperatures if the miscibility of the reaction partners is good or is supported by stirring or by the presence of solvents. MDI is insoluble with, and heavier than water and sinks to the bottom but reacts slowly at the interface. A solid water-insoluble layer of polyurea is formed at the interface by liberating carbon dioxide gas.
Conditions to avoid	: Avoid high temperatures.
Incompatible materials	: Water, alcohols, amines, bases, and acids.
Hazardous decomposition products	: Combustion products may include: carbon oxides (CO, CO ₂) nitrogen oxides (NO, NO ₂ etc.) hydrocarbons and HCN

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Endpoint	Species	Result
Isocyanic acid, polymethylenepolyphenylene ester	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.49 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabbit - Male, Female	>9400 mg/kg
	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male	>10000 mg/kg
	OECD 403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat - Male, Female	0.49 mg/l
	OECD 402 Acute Dermal Toxicity	LD50 Dermal	Rabbit - Male, Female	>9400 mg/kg
4,4'-Methylenediphenyl diisocyanate				

Section 11. Toxicological information

	OECD 401 Acute Oral Toxicity	LD50 Oral	Rat - Male	>10000 mg/kg
--	------------------------------	-----------	------------	--------------

Conclusion/Summary : 4,4'-Methylenediphenyl diisocyanate Irritating to respiratory system.

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
Isocyanic acid, polymethylenepolyphenylene ester Diphenylmethane 4,4'-diisocyanate	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Mild irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Non-irritant.
	OECD 404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Irritant
	OECD 405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Non-irritant.

Conclusion/Summary

Skin : Isocyanic acid, polymethylenepolyphenylene ester Irritating to skin.
Diphenylmethane 4,4'-diisocyanate Irritating to skin.

Eyes : Isocyanic acid, polymethylenepolyphenylene ester Based on the human occupational exposure data, this substance is considered as irritating to eyes.
Diphenylmethane 4,4'-diisocyanate Based on the human occupational exposure data, this substance is considered as irritating to eyes.

Respiratory : Isocyanic acid, polymethylenepolyphenylene ester No additional information.
Diphenylmethane 4,4'-diisocyanate No additional information.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result
Isocyanic acid, polymethylenepolyphenylene ester Diphenylmethane 4,4'-diisocyanate	OECD 406 Skin Sensitization	skin	Guinea pig	Not sensitizing
	No official guidelines	Respiratory	Rat	Sensitizing
	-	skin	Guinea pig	Sensitizing
	OECD 429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Sensitizing
	OECD 406 Skin Sensitization	skin	Guinea pig	Not sensitizing
	No official guidelines	Respiratory	Guinea pig	Sensitizing

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Result
Isocyanic acid, polymethylenepolyphenylene ester	Experiment: In vitro Subject: Bacteria Metabolic activation: +/- Experiment: In vivo Subject: Mammalian-Animal	Negative Negative
Diphenylmethane 4,4'-diisocyanate	Experiment: In vivo Subject: Mammalian-Human Experiment: In vitro Subject: Bacteria Metabolic activation: +/- Experiment: In vivo Subject: Mammalian-Animal	Equivocal Negative Negative

Conclusion/Summary :

Isocyanic acid, polymethylenepolyphenylene ester No mutagenic effect.
4,4'-Methylenediphenyl diisocyanate No mutagenic effect.

Carcinogenicity

Product/ingredient name	Test	Species	Dose	Exposure	Result/Result type
Isocyanic acid, polymethylenepolyphenylene ester	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	1 mg/m ³	2 years; 5 days per week	Negative - Inhalation - NOAEL
4,4'-Methylenediphenyl diisocyanate	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Rat - Male, Female	1 mg/m ³	2 years; 5 days per week	Positive - Inhalation - NOAEL

Carcinogenic class

Product/ingredient name	IARC	OSHA
Isocyanic acid, polymethylenepolyphenylene ester	3	-
4,4'-Methylenediphenyl diisocyanate	3	-

Reproductive toxicity

Product/ingredient name	Test	Species	Maternal toxicity	Fertility	Developmental effects
Isocyanic acid, polymethylenepolyphenylene ester	OECD 414 Prenatal Developmental Toxicity Study	Rat - Male, Female	Negative	Negative	Negative

Conclusion/Summary :

Section 11. Toxicological information

Isocyanic acid, polymethylenepolyphenylene ester
4,4'-Methylenediphenyl diisocyanate

No known significant effects or critical hazards.
No known significant effects or critical hazards.

Teratogenicity

Product/ingredient name	Test	Species	Result/Result type
Isocyanic acid, polymethylenepolyphenylene ester	OECD 414 Prenatal Developmental Toxicity Study	Rat - Male, Female	Negative - Inhalation
	OECD 414 Prenatal Developmental Toxicity Study	Rat - Male, Female	Negative - Inhalation
Diphenylmethane 4,4'-diisocyanate	OECD 414 Prenatal Developmental Toxicity Study	Rat - Female	Negative - Inhalation

Conclusion/Summary :

Isocyanic acid, polymethylenepolyphenylene ester
4,4'-Methylenediphenyl diisocyanate

No known significant effects or critical hazards.
No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Isocyanic acid, polymethylenepolyphenylene ester	Category 3	Not applicable.	Respiratory tract irritation
Diphenylmethane 4,4'-diisocyanate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : Harmful if inhaled. May cause respiratory irritation. This product is a respiratory irritant and potential respiratory sensitiser: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitisation. Symptoms may include irritation to the eyes, nose, throat and lungs, possibly combined with dryness of the throat, tightness of chest and difficulty in breathing. The onset of the respiratory symptoms may be delayed for several hours after exposure. A hyper-reactive response to even minimal concentrations of MDI may develop in sensitised persons. LC50 (rat) : ca. 490 mg/m³ (4 hours) : using experimentally produced respirable aerosol having aerodynamic diameter <5microns.

Section 11. Toxicological information

- Skin contact** : Causes skin irritation. May cause sensitization by skin contact. Animal studies have shown that respiratory sensitisation can be induced by skin contact with known respiratory sensitisers including diisocyanates. These results emphasize the need for protective clothing including gloves to be worn at all times when handling these chemicals or in maintenance work.
- Ingestion** : Low oral toxicity, but ingestion may cause irritation of the gastrointestinal tract.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Product/ingredient name	Test	Endpoint	Species	Result
Isocyanic acid, polymethylenepolyphenylene ester	OECD 453 Combined Chronic Toxicity/ Carcinogenicity Studies	Chronic NOEC Inhalation Dusts and mists	Rat - Male, Female	0.2 mg/m ³

- General** : May cause damage to organs through prolonged or repeated exposure if inhaled. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
- Carcinogenicity** : Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m³), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adenocarcinoma). There were no lung tumours at 1 mg/m³ and no effects at 0.2 mg/m³. Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that

Section 11. Toxicological information

tumour formation will occur.

- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No birth defects were seen in two independent animal (rat) studies. Fetotoxicity was observed at doses that were extremely toxic (including lethal) to the mother. Fetotoxicity was not observed at doses that were not maternally toxic. The doses used in these studies were maximal, respirable concentrations, which are well in excess of defined occupational exposure limits.
- Fertility effects** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Inhalation (dusts and mists)	1.5 mg/l

Other information : Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Endpoint	Exposure	Species	Result
Isocyanic acid, polymethylenepolyphenylene ester	OECD 201 Alga, Growth Inhibition Test	Acute EC50	72 hours Static	Algae	>1640 mg/l
	OECD 209 Activated Sludge, Respiration Inhibition Test	Acute EC50	3 hours Static	Bacteria	>100 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	24 hours Static	Daphnia	>1000 mg/l
	-	Acute LC0	96 hours	Fish	>1000 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	>1000 mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic NOEC	21 days Semi-static	Daphnia	>=10 mg/l
	OECD 201 Alga, Growth Inhibition Test	Chronic NOECr	72 hours Static	Algae	1640 mg/l
	OECD 202 <i>Daphnia</i> sp. Acute Immobilisation Test	Acute EC50	24 hours Static	Daphnia	>1000 mg/l
	OECD 203 Fish, Acute Toxicity Test	Acute LC50	96 hours Static	Fish	>1000 mg/l
	OECD 211 <i>Daphnia Magna</i> Reproduction Test	Chronic NOEC	21 days Semi-static	Daphnia	>=10 mg/l
4,4'-Methylenediphenyl diisocyanate	OECD 201 Alga, Growth Inhibition Test	Chronic NOECr	72 hours Static	Algae	1640 mg/l

Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Period	Result
Isocyanic acid, polymethylenepolyphenylene ester	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0 %
4,4'-Methylenediphenyl diisocyanate	OECD 302C Inherent Biodegradability: Modified MITI Test (II)	28 days	0 %

Conclusion/Summary : Isocyanic acid, polymethylenepolyphenylene ester Not biodegradable
4,4'-Methylenediphenyl diisocyanate Not biodegradable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Isocyanic acid, polymethylenepolyphenylene ester	Fresh water 0.8 days	-	Not readily
Diphenylmethane 4,4'-diisocyanate	Fresh water 0.83 days	-	Not readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Isocyanic acid, polymethylenepolyphenylene ester	-	200	low
Diphenylmethane 4,4'-diisocyanate	4.51	200	low

Mobility in soil

Mobility : By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino- diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.

Other adverse effects : No known significant effects or critical hazards.

Other ecological information

BOD₅ : Not determined.

COD : Not determined.

TOC : Not determined.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

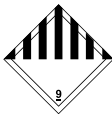
Proper shipping name

DOT : OTHER REGULATED SUBSTANCES, LIQUID, N.O.S. (Methylene Diphenyl Diisocyanate)

TDG : Not regulated.

IMDG : Not regulated.

IATA : Not regulated.

Regulatory information	UN number	Classes	PG*	Label	Additional information
DOT Classification	NA3082	9	III		Reportable quantity 5000 lbs. (2270 kg) Single containers less than 5,000 lbs. are not regulated.
TDG Classification	Not regulated.	-	-		-
IMDG Classification	Not regulated.	-	-		-
IATA Classification	Not regulated.	-	-		-

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.

TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.

Section 15. Regulatory information

TSCA 5(e) substance consent order : No ingredients listed.

TSCA 12(b) export notification : No ingredients listed.

SARA 311/312 : Immediate (acute) health hazard

	<u>Product name</u>	<u>Concentration %</u>
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	: 4,4'-Methylenediphenyl diisocyanate	36 - 42

Clean Air Act - Ozone Depleting Substances (ODS) : This product does not contain nor is it manufactured with ozone depleting substances.

	<u>Product name</u>	<u>Concentration %</u>
SARA 313	: Methylenediphenyldiisocyanate, isomers and	51.5 - 62
Form R - Reporting requirements	homologues	
	Diphenylmethane 4,4'-diisocyanate	36 - 42

	<u>Ingredient name</u>	<u>%</u>	<u>Section 304 CERCLA Hazardous Substance</u>	<u>CERCLA Reportable Quantity (Lbs)</u>	<u>Product Reportable Quantity (Lbs)</u>
CERCLA Hazardous substances	: Diphenylmethane 4,4'	42	Listed	5000	11905
	diisocyanate				

State regulations

PENNSYLVANIA - RTK : 4,4'-Methylenediphenyl diisocyanate

California Prop 65 : This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

Canadian regulations

CEPA DSL : All components are listed or exempted.

WHMIS Classes : WHMIS Class D-2A: Material causing other toxic effects (Very toxic).
WHMIS Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Brazil Regulations

Classification system used : Norma ABNT-NBR 14725-2:2012

Section 15. Regulatory information

International lists

- : **Australia inventory (AICS):** All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

Section 16. Other information

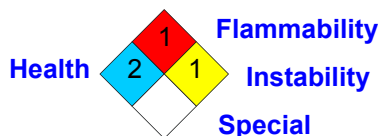
Hazardous Material Information System (U.S.A.)

Health	*	2
Flammability		1
Physical hazards		1
Personal protection		

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Date of printing : 8/25/2014.
Date of issue : 8/25/2014.
Date of previous issue : 01/05/2011
Version : 7

Indicates information that has changed from previously issued version.

Section 16. Other information

Liquid decontaminants (percentages by weight or volume) :

Decontaminant 1 : *- sodium carbonate : 5 - 10 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %

Decontaminant 2 : *- concentrated ammonia solution : 3 - 8 % *- liquid detergent : 0.2 - 2 % *- water : to make up to 100 %

Decontaminant 1 reacts slower with diisocyanates but is more environmentally friendly than decontaminant 2.

Decontaminant 2 contains ammonia. Ammonia presents health hazards. (See supplier safety information.)

Literature reference: PU 193-1 : 'MDI-Based Compositions : Hazards and Safe Handling Procedures.'

PU 181-15 : Recommended melting procedures for MDI-based isocyanates.

ISOPA Guidelines for safe Loading/Unloading, Transportation, Storage of TDI and MDI , Ref.03-96 PSC-0005-GUIDL.

SPI PMDI User Guidelines for the Chemical Protective Clothing Selection.

References of methods used in the Physico-Chemical Properties section are reported in Annex V part A to

Commission Directive 92/69/EEC of 31 July 1992 adapting to technical progress for the Seventeenth time Council Directive 67/548/EEC.

Notice to reader

While the information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT PERMISSION IN WRITING FROM HUNTSMAN. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET SHOULD BE DIRECTED TO HUNTSMAN, MANAGER, PRODUCT SAFETY AT THE ABOVE ADDRESS.

Aquathane AT 400 – AT800 Series and all ATX B component Polyol

Safety Data Sheet

Date of issue: 04/17/2015 Revision date: 02/10/2023 Supersedes: 09/29/2014

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

1.1. Product identifier

Product form : Mixture
Trade name : Aquathane AT400 – AT800 Series and all ATX prefixes Polyol Resin B COMPONENT

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

Use of the substance/mixture : Component of Polyurethane System

1.3. Details of the supplier of the safety data sheet

Utah Foam Products, Inc. Utah Foam Products, Inc. (Plant)
P.O. Box 70838 295 West 400 South
3609 South 700 West Nephi, Utah 84648
Salt Lake City, UT 84170
T (801)269-0600 Admin (435)-623-1515 Plant
www.utahfoam.com

1.4. Emergency telephone number

Emergency number : 24 HR CHEMTREC:1-800-424-9300; 24 HR Emergency Assistance: 1-270-422-6860

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)
Not classified

2.2. Label elements

GHS-US labeling
No labeling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
PROPOXYLATED SUCROSE	(CAS No) Proprietary	46 - 63	Not classified
Polyether Triol	(CAS No) 25791-96-2	28 - 44	Not classified
OXYPROPYLATED ALIPHATIC AMINE	(CAS No) 35176-06-8	9 - 10	Not classified
Diethylene glycol	(Cas No) 111-46-6	0 -10	Not classified

Full text of H-phrases: see section 16

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 you feel unwell, seek medical advice (show the label where possible).

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

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

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.

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

Symptoms/injuries : Not expected to present a significant hazard under anticipated conditions of normal use.

Aquathane AT400 – AT800 and all ATX prefixes B Component

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

: Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media

: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

No additional information available

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

: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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

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.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

: Keep only in the original container in a cool, well ventilated place away from : Ignition sources. Keep container closed when not in use.

Incompatible products

: Strong bases. Strong acids.

Incompatible materials

: Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

POLY-G® 71-360

ACGIH Not applicable

OSHA Not applicable

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)

ACGIH Not applicable

OSHA Not applicable

Polyether Triol (25791-96-2)

ACGIH Not applicable

Aquathane AT400 – AT800 and all ATX prefixes B Component

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Polyether Triol (25791-96-2)

OSHA	Not applicable
PROPOXYLATED SUCROSE (Proprietary)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Personal protective equipment	: Avoid all unnecessary exposure.
Hand protection	: Wear protective gloves.
Eye protection	: Chemical goggles or safety glasses.
Respiratory protection	: Wear appropriate mask.
Other information	: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Pale yellow or milk white
Color	: may be pigmented
Odor	: Amine-like - slight
Odor threshold	: No data available
pH	: 8 - 10 10/6 Isopropanol / water (@ 25 Deg. C)
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 200 °C (Open cup)
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: 0.1 mm Hg (@ 25 Deg. C)
Relative density	: 1.1 - 1.15
Relative vapor density at 20 °C	: No data available
Specific gravity / density	: 9 - 9.2 lb/gal
Solubility	: Soluble in water.
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 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

Not established.

Aquathane AT400 – AT800 and all ATX prefixes B Component

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

fume. Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
Polyether Triol (25791-96-2)	
LD50 oral rat	4600 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 200 mg/l 1hr
ATE US (oral)	4600.000 mg/kg body weight

Skin corrosion/irritation : Not classified
pH: 8 - 10 10/6 Isopropanol / water (@ 25 Deg. C)

Serious eye damage/irritation : Not classified
pH: 8 - 10 10/6 Isopropanol / water (@ 25 Deg. C)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
LC50 fish 1	> 100 mg/l
Polyether Triol (25791-96-2)	
LC50 fish 1	> 100 mg/l

12.2. Persistence and degradability

POLY-G® 71-360	
Persistence and degradability	Not established.
OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
Persistence and degradability	Not established.
Polyether Triol (25791-96-2)	
Persistence and degradability	Not established.

Aquathane AT400 – AT800 and all ATX prefixes B Component

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

12.3. Bioaccumulative potential

POLY-G® 71-360	
Bioaccumulative potential	Not established.
OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
Bioaccumulative potential	Not established.
Polyether Triol (25791-96-2)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

Other 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.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Polyether Triol (25791-96-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
PROPOXYLATED SUCROSE (Proprietary)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. International regulations

CANADA

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)	
Listed on the Canadian DSL (Domestic Substances List)	
Polyether Triol (25791-96-2)	
Listed on the Canadian DSL (Domestic substances List)	
PROPOXYLATED SUCROSE (Proprietary)	
Listed on the Canadian DSL (Domestic substances List)	

Aquathane AT400 – AT800 and all ATX prefixes B Component

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

EU-Regulations

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)

Listed on the EU NLP (No Longer Polymers) inventory

Polyether Triol (25791-96-2)

Listed on the EU NLP (No Longer Polymers) inventory

PROPOXYLATED SUCROSE (Proprietary)

Listed on the EU NLP (No Longer Polymers) inventory

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

No additional information available

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

Not classified

National regulations

OXYPROPYLATED ALIPHATIC AMINE (35176-06-8)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Polyether Triol (25791-96-2)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on Turkish inventory of chemical

PROPOXYLATED SUCROSE (Proprietary)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Listed on the Korean ECL (Existing Chemicals List)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

15.3. US State regulations

SECTION 16: Other information

Revision date : 04/10/2015

Other information : None.

SDS US (GHS HazCom 2012)

DISCLAIMER: Utah Foam Products believes that the information expressly set forth in this Safety Data Sheet (SDS) is accurate as of the date of publication. UTAH FOAM PRODUCTS EXPRESSLY DISCLAIMS ALL WARRANTIES OF EVERY KIND AND NATURE, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Utah Foam Products assumes no responsibility for any use of or reliance upon the data provided in this SDS. Given the variety of factors that can affect the use of the material, some of which are uniquely within the user's knowledge and control, the user should independently evaluate (i) the completeness and accuracy of the information provided herein and (ii) the material to determine whether it is suitable and safe for the user's intended use.

Utah Foam Products provides information in electronic form as a service to its customers. Due to the remote possibility that electronic transfer may have resulted in errors, omissions or alterations in this information, Utah Foam Products makes no representations as to its completeness or accuracy. In addition, information obtained from a database may not be as current as the information in the SDS available directly from Monument Chemical.

Material Characteristics

NCFI-4RH is a 4lb hydrophobic / hydro-insensitive, MDI-based, water blown system that is designed for exceptional spread and lifting capacity. The hydrophobic nature of NCFI-4RH allows it to maintain exceptional physical properties even in saturated conditions. This system is typically selected for DOT and roadwork and is also typically used for void filling, concrete lifting, and deep soil injection applications. Certified to NSF/ANSI/CAN 61 upon request.

Applications

**Bridge Approaches and Departures
Highways and Streets
Airport Runways and Taxiways
Concrete Slab Lifting
Joint Matching
Void Filling
Deep Soil Injection**



NSF/ANSI/CAN 61 - 5".
*Upon Request

Unique Advantages

**Hydrophobic / Hydro-Insensitive
Contains No Solvents
Strengthens Loose Soil
Water Blown System**

Reactivity at 110°F

Cream Time	5-8 seconds
Gel Time	11-15 seconds
Tack Free Time	16-19 seconds
Rise Time	25-30 seconds
Cure Time	95% @ 30min. Full cure at 24hrs

Chemical Resistance

<i>Solvents...</i>	Excellent
<i>Mold and Mildew...</i>	Excellent

Performance

<i>Wet Environments...</i>	Excellent
<i>Lifting Capacity...</i>	Excellent

Physical Properties

Physical Properties	Test Method	Free Rise	Restrained
Density	ASTM D1622	4 pcf	5 – 6 pcf
Compressive Strength	ASTM D1621	80 psi	80 – 100 psi
Compressive Modulus	ASTM D1621	1900 psi	3000 psi
Tensile Strength	ASTM D1623	117 psi	120 – 135 psi
Tensile Modulus	ASTM D1623	1446 psi	3100 psi
Water Absorption	ASTM D2842	≤0.04lbs/ft ²	≤0.04lbs/ft ²
Closed Cell Content	ASTM D6226	>92%	>92%
Max Service Temp		200°F	200°F
Elongation	ASTM D1623	5.1%	
Shear Strength	ASTM C273	52 psi	90 psi
Shear Modulus	ASTM C273	602 psi	677 psi
Flexural Strength	ASTM D790	87 psi	139 psi
Flexural Modulus	ASTM D790	1625 psi	3147 psi

Special Testing

NYDOT Hydro-Insensitivity test, GTP-9		>96% density retention >94% comp strength retention	
Dimensional Stability, % volume change, 28 days aging (ASTM D-2126)	Heat age at 158°F	Freezer at -20°F	Humid age at 100% RH & 120°F
	-1.5%	-0.1%	-1.0%

Component Properties

Component	B-NCFI-4RH	A2-000
Appearance	Transparent Liquid	Clear Brown Liquid
Brookfield Viscosity @20rpm	750 cps at 72°F	200 cps at 72°F
Specific Gravity	1.05	1.24
Weight per Gallon	8.76 lbs	10.3 lbs
Storage Temperature	50-100°F	50-100°F

Mix Ratio

<i>By weight... 118 parts A-side: 100 parts B-side</i>
<i>By volume... 100 parts A-side: 100 parts B-side</i>

Processing Parameters

A-side Temperatures	100 – 120°F
B-side Temperatures	100 – 120°F
Mixing Pressure	1000 psi static 800 psi dynamic

Storage and Handling

For optimum shelf life, the recommended storage temperature is 50°F to 100°F. **Do not expose A-side to lower temperatures – freezing may occur.** Avoid moisture contamination during storage, handling, and processing. After opening, pad the containers and day tanks with either nitrogen or dry air (desiccant cartridge or air dryer @ -40°F dew point). Store components at 70°F to 90°F for several days prior to use to minimize viscosity issues. Shelf life of B-side is 6 months and A-side is 2 years for factory sealed containers.

Application Cautions

Careful consideration should be given to selection and application of any NCFI Polyurethane foam system where excessive foam mass build-up can occur. Excessive polyurethane foam lift thickness will result in high internal temperatures within the injected foam, which can result in degraded foam properties, or in extreme cases, fire or spontaneous combustion. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions.** Each person, firm or corporation engaged in the application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures. Please consult NCFI Polyurethanes for safety considerations, polyurethane system selection and application recommendations.

The Information contained herein is believed to be reliable, but no representations, guarantees, or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Because of the variation in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the application disclosed. Full-scale testing and end product performance are the sole responsibility of the user. NCFI Polyurethanes shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond NCFI's direct control. NCFI MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendations, nor as an inducement to practice any patented invention without permission of the patent owner.



SAFETY DATA SHEET According to GHS

PO Box 1528 • Mount Airy, NC 27030-1528
800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Houston, TX

Mt. Airy, NC

Section 1: Identification

Product Identifier

Trade Name: B-NCFI-4RH
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

Name: NCFI Polyurethanes
Address: 1515 Carter St Mount Airy, NC 27030
Website: www.NCFI.com
Phone: (800) 346-8229
Fax: (336) 789-9586
Emergency Phone: CHEMTREC: 800-424-9300

Section 2: Hazard Identification

Classification of the substance or mixture:

GHS Classification:	
• Skin irritation, Category 3	• Eye irritation, Category 2

GHS Labeling:



WARNING

Hazard Statements:	
• May cause skin irritation	• May cause eye irritation
• May cause respiratory irritation	

Precautionary Statements:	
• Do not breathe fume/gas/mist/vapors/spray	• Wear protective gloves/eye protection/face protection
• IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	• IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
• IF ON SKIN: Wash with plenty of soap and water	

Section 3: Composition

Hazardous Components

Type of product: Mixture

CAS#	Weight %	Name
Proprietary	<4	Tertiary amine catalysts

Section 4: First Aid Measures

Inhalation:	Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician.
Eye Contact:	Flush with water for at least 15 minutes. See a physician if irritation develops.



SAFETY DATA SHEET According to GHS

PO Box 1528 • Mount Airy, NC 27030-1528
800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Houston, TX

Mt. Airy, NC

Ingestion:	Induce vomiting; get medical attention
Most Important symptoms and effects, acute and delayed:	May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization.
Indication of immediate medical attention and special treatment, if applicable:	N/A
Skin Contact:	Wash with soap and water at first opportunity.

Section 5: Fire-Fighting Measures

Suitable extinguishing media:	Water, dry chemicals, CO ₂
Unsuitable extinguishing media:	None
Special hazards arising from the chemical:	Overheated containers may rupture due to pressure produced by CF ₃ CH ₂ CHF ₂ . CF ₃ CH ₂ CHF ₂ burns to form acids and noxious gases.
Precautions for fire-fighters:	A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors.

Section 6: Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures:	Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.
Environmental precautions:	Do not discharge into drains/surface waters/groundwater
Methods and material for containment and cleanup:	Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations.

Section 7: Handling and Storage

Precautions for safe handling:	Store between 50°F and 100°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch.
Conditions for safe storage, including any incompatibilities:	Keep tightly sealed.

Section 8: Exposure Controls and PPE

Exposure Limits

Component:	Type	Value
Tertiary Amine Catalysts ¹	TWA	None established
1,1,1,3,3-Pentafluoropropane ¹ (CF ₃ CH ₂ CHF ₂ or HFC-245fa)	TWA	300 ppm recommended

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

Respiratory Protection:	The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained.
--------------------------------	---



SAFETY DATA SHEET According to GHS

PO Box 1528 • Mount Airy, NC 27030-1528
800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Houston, TX

Mt. Airy, NC

Hand, eye, skin, body protection:	Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available.
--	---

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

Appearance:	Liquid	Flammability:	No
Color:	Amber to light Brown	Upper/lower flammability or explosive limits:	N/A
Odor:	Ethereal odor	Vapor pressure:	N/A
Odor threshold:	N/A	Vapor density:	N/A
pH:	N/A	Relative density:	1.08g/mL
Melting pt/freezing pt:	<32°F	Solubility(ies):	Slightly soluble in water
Boiling pt/boiling range:	>200°F	Partition coefficient (n-octanol/water):	N/A
Flash point:	>200°F	Auto-ignition temperature:	>500°F
Evaporation rate:	Slower than ether	Decomposition temperature:	>500°F

Section 10: Stability and Reactivity

Chemical stability:	Stable
Possibility of hazardous reactions:	N/A
Conditions to avoid:	Temperatures over 85°F
Incompatible materials:	Isocyanates and other chemicals that react with hydroxyl groups.
Hazardous decomposition products:	When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids and possibly carbonyl halides.

Section 11: Toxicological Information

Acute toxicity:	May cause skin irritation
Chronic toxicity:	Not available
Likely routes of exposure:	Skin
Symptoms related to physical, chemical and toxicological characteristics:	May cause skin irritation
Delayed and immediate effects and chronic effects from short and long-term exposure:	May cause skin irritation; avoid contact with eyes
Numerical toxicity measures:	Not available

Section 12: Ecological Information

Ecotoxicity:	Not a marine pollutant
Persistence and degradability:	No known significant effects
Bioaccumulative potential:	Does not bioaccumulate
Mobility in soil:	

Section 13: Disposal



SAFETY DATA SHEET According to GHS

PO Box 1528 • Mount Airy, NC 27030-1528
800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Houston, TX

Mt. Airy, NC

Waste disposal:	R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations
------------------------	---

Section 14: Transport

UN number:	Not regulated
UN Proper shipping name:	Not regulated
Transport Hazard class(es):	Not regulated
Packing group, if applicable:	Not regulated
Marine pollutant (YorN):	N
Special precautions:	None

Section 15: Regulatory

Relevant safety, health, and environmental regulations

Inventory Status:	All components TSCA listed
US Regulations:	No ingredients listed
US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information:	No ingredients listed

Section 16: Other

SDS Preparation Date:	06/25/2014
Revision Date:	07/09/2015
Revision 2 Date:	10/30/2017
Revision 3 Date:	03/22/2019
Revision 4 Date:	02/27/2025

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.



ALS Group USA, Corp.

10450 Stancliff Rd. Suite 210 Houston, Texas 77099

Certified Product Listing

For:

Drinking Water System Components - Health Effects

Company:

NCFI Polyurethanes
1515 Carter St
Mt. Airy, NC 27030, United States

Plant Location:

Missouri City, Texas, United States

Standards:

NSF/ANSI/CAN 61 - 2024

Certificate:

Issued Date: 11/03/2025

Material/Product:

Geotechnical Foam System.

Contact Temperature:

23 ± 2°C

Models:

NCFI 24-003
NCFI-4RH



Product certified to NSF/ANSI/CAN 372 conforms to the requirements for "Lead Free" plumbing products as defined by California, Vermont, Maryland and Louisiana state laws and by section 1417 of the US SDWA.

ALS Group's Product Certification Listing directory contains the most current certified product(s) and supersedes all printed copies of the listings.



Material Characteristics:

Minimum tank size (gallons): 400

Maximum tank surface area/volume ratio (sq in/L): 8.2

Number of coats: 1

Is additional coating required (e.g. top coat, primer, intermediate coat)? (Y/N): No

Total cure time and temperature: 24 hours/23Â°C

Final cure time: 24 hours

Mix ratio: 1:1 by Volume

Colors: Gray

Is this paint/coating system intended to be applied to a pipe? (Y/N): No

Additional comments:

Product water contact should not exceed 5% of total wetted surface area.



Product certified to NSF/ANSI/CAN 372 conforms to the requirements for "Lead Free" plumbing products as defined by California, Vermont, Maryland and Louisiana state laws and by section 1417 of the US SDWA.



AT-840

Two-component structural
polyurethane foam

STORAGE & CLEAN UP

Storage: Store between 50 and 75F to minimize container pressure. Take care to open containers, loosen closure to relieve pressure slowly before fully opening. Shelf Life: 1 year from date of manufacture in unopened containers properly stored. Protect from moisture.

Clean Up: Clean off of skin with soap and water. To clean uncured resin from the gun, flush with acetone.

ENVIRONMENTAL PROTECTION

Cured material is environmentally safe. Dispose of in according to appropriate regulations. Clean up any spilled catalyzed liquid material and add a small amount of water to cure unreacted material.

HEALTH & SAFETY

Safety: Use OSHA-approved personal protective equipment (PPE), including safety glasses, gloves and confined space equipment/procedures if applicable. Avoid skin contact; do not ingest. See SDS for complete safety precautions. For professional use only.

FIRST AID

Eye Contact: Immediately flush with large amounts of water. Seek medical attention.

Inhalation: Move to fresh air if symptoms occur.

If breathing is difficult, seek medical attention.

Ingestion: Seek medical attention immediately.

Skin Contact: Wipe off contaminated area and wash with soap and water immediately.

MANUFACTURING

Products are manufactured by Utah Foam Products in the U.S.A. under strict quality assurance practices at our Salt Lake City, UT plant.

SHIPPING

Shipping Class: Motor Freight Class 60 Hazard

Classification: Not Hazardous

WARRANTY & DISCLAIMER

Utah Foam Products Inc. warrants its products to be free from manufacturing defects and those products meet the published characteristics when tested in accordance with ASTM and Utah Foam Products standards. No other warranties by Utah Foam Products are expressed or implied, including no warranty of merchantability or fitness for a particular purpose. Utah Foam Products will not be liable for damages of any sort resulting from any claimed breach of warranty. Utah Foam Products' liability under this warranty is limited to replacement of material or refund of sales price of the material. There are no warranties on any product that has exceeded the "shelf life" or "expiration date" printed on the package label.

TESTING DATA

Physical Properties - Cured	Results	Test Method
Compressive Strength	95-105 psi	ASTM D-1621
Compressive Modulus	1800 psi	ASTM D-1621
Density	4 lbs./cubic ft (=/- .25)	ASTM D-1622
Tensile Strength	100-110 psi	ASTM D-1623
Shrinkage	Negligible	ASTM D-1042
Water Absorption lbs/ft ²	<0.10	ASTM D-2842
Closed Cell Content %	>90.0	ASTM D-6226
Shear Strength	35-40 psi	ASTM C-273
Flexural Strength	55-60 psi	ASTM D-790
Shear Modulus	550	ASTM C-273
Flexural Modulus	810 psi	ASTM D-790

Reaction Times

Product	*840-3	*840-8	*840-12	*840-20
Cream Time (sec)	3-4	8-10	10-12	18-20
Rise Time (sec)	11-12	20-22	24-26	75-85
Tack Free Time (sec)	9-10	14-18	20-24	50-70
90% Strength (min)	15	20	25	30

DIMENSIONAL STABILITY (ASTM D-2126)

Volume Change @ -40°F	< 2%
Volume Change @ +200°F	< 2%

DIRECTIONS FOR USE

Mixing Ratio: A:B 1:1 by volume

Material Preparation: Store material overnight to precondition to 70-80°F (21-27°C) prior to use. Pre-mix the “B” component prior to combining. “B” component contains chemicals that settle over time. Failure to properly pre-mix will result in uncured or improperly cured material. Dispense using a two-component proportioner pump with heated hoses and impingement-style gun. Call Utah Foam Products for details.

Limitations: Cold temperatures will slow down reaction time and increase viscosity. pH below 3 or above 10 may adversely affect foam properties. Adjustments for altitude density may also be required.

PG 1

Tuesday, July 7, 2026

CST
Clint Mathis

Clint,

Our urethane systems, AT-840-8 & AT-840-10, are very stable robust products. They both have over a 90% closed cell content. As with all (most) rigid urethane systems when reacted are inert and stable. Off gasing or leaching will not be a problem.

The foamed material will be effected by UV from the sun.

Any questions, please advise.



Duane Robinson
Technical Sales
UTAH FOAM PRODUCTS