



### 1. IDENTIFICATION

<b>Product Name</b>	Hi-Ex <sup>®</sup> 1-3 High Expansion Foam Concentrate
<b>Recommended use of the chemical and restrictions on use</b>	
<b>Identified uses</b>	Firefighting Foam Concentrate
<b>Restrictions on Use</b>	See product data sheet
<b>Company Identification</b>	Angus Fire 141 Junny Street Angier, NC 27501-8625 (919) 659-6151
<b>Customer Information Number</b>	
<b>Emergency Telephone Number</b>	Infotrac at (800) 535-5053
<b>Issue Date</b>	January 4, 2017
<b>Supersedes Date</b>	April 29, 2016

*Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*

### 2. HAZARD IDENTIFICATION

#### Hazard Classification

Eye Damage/Irritation - Category 1  
Skin Corrosion/Irritation - Category 2  
Specific Target Organ Toxicity (Repeated Exposure) - 2

#### Label Elements

Hazard Symbols



Signal Word: Danger

#### Hazard Statements

Causes serious eye damage.  
Causes skin irritation.  
May cause damage to organs (kidney) through prolonged or repeated exposure (oral).

#### Precautionary Statements

##### Prevention

Wash hands thoroughly after handling.  
Wear protective gloves, eye protection and face protection.

##### Response

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.  
If on skin: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.  
Get medical advice/attention if you feel unwell.

##### Storage

None

##### Disposal

Dispose of contents/container in accordance with local regulation.



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### 2. HAZARD IDENTIFICATION

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**Other Hazards**

None identified.

**Specific Concentration Limits**

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	5 - 15%
Acute dermal toxicity	5 - 15%
Acute inhalation toxicity	40 - 50%
Acute aquatic toxicity	20 - 30%

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CAS Number	Concentration
Water	7732-18-5	50 - 60%
Diethylene Glycol Monobutyl Ether	112-34-5	15 - 25%
Alkyl Ether Sulfate	Proprietary	5 - 15%
Surfactant	Proprietary	1 - 10%
Ethylene Glycol	107-21-1	1 - 5%
Alcohol	Proprietary	1 - 5%

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### 4. FIRST-AID MEASURES

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**Description of necessary first-aid measures****Eyes**

Immediately flood the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention.

**Skin**

Wash skin thoroughly with soap and water. Obtain medical attention if irritation persists.

**Ingestion**

Dilute by drinking large quantities of water and obtain medical attention.

**Inhalation**

Move victim to fresh air. Obtain medical attention immediately for any breathing difficulty.

**Most important symptoms/effects, acute and delayed**

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

**Indication of immediate medical attention and special treatment needed****Notes to Physicians**

Treat symptomatically.

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### 5. FIRE - FIGHTING MEASURES

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**Suitable Extinguishing Media**

This preparation is used as an extinguishing agent and therefore is not a problem when trying to control a fire. Use extinguishing agent appropriate to other materials involved.



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### 5. FIRE - FIGHTING MEASURES

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**Specific hazards arising from the chemical**

None known

**Special Protective Actions for Fire-Fighters**

Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.

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### 6. ACCIDENTAL RELEASE MEASURES

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

Wear appropriate protective clothing. Prevent skin and eye contact.

**Environmental Precautions**

Prevent foam concentrate or foam solution from entering ground water, surface water, or storm drains. Discharge and disposal of concentrate or foam solution should be made in accordance with federal, state, and local regulations.

**Methods and materials for containment and cleaning up**

Contain and absorb using appropriate inert material and transfer into suitable containers for recovery or disposal.

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### 7. HANDLING AND STORAGE

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**Precautions for safe handling**

Wear appropriate protective clothing. Prevent skin and eye contact.

**Conditions for safe storage**

Store in original containers between 25°F and 120°F (-4°C and 49°C). Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Control parameters**

Exposure limits are listed below, if they exist.

**Diethylene Glycol Monobutyl Ether, Inhalable Fraction and Vapor**

ACGIH: TLV 10 ppm, 8hr

**Ethylene Glycol, Aerosol**

ACGIH: Ceiling 100 mg/m<sup>3</sup>

**Appropriate engineering controls**

Use with adequate ventilation. If this product is used in a pressurized system, there should be local procedures for the selection, training, inspection and maintenance of this equipment. When used in large volumes, use local exhaust ventilation.



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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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#### Individual protection measures

##### Respiratory Protection

Wear respiratory protection if there is a risk of exposure to high vapor concentrations, aerosols or if applied to hot surfaces. A NIOSH approved full face respirator may be worn. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.

##### Skin Protection

Gloves

##### Eye/Face Protection

Chemical goggles or safety glasses with side shields.

##### Body Protection

Normal work wear.

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### 9. PHYSICAL AND CHEMICAL PROPERTIES

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#### Appearance

	<b>Physical State</b>	Liquid
	<b>Color</b>	amber
<b>Odor</b>		Mild, pleasant
<b>Odor Threshold</b>		No data available
<b>pH</b>		7.0
<b>Relative Density</b>		1
<b>Boiling Range/Point (°C/F)</b>		No data available
<b>Melting Point (°C/F)</b>		No data available
<b>Flash Point (°C/F)</b>		Not flammable
<b>Vapor Pressure</b>		No data available
<b>Evaporation Rate (BuAc=1)</b>		No data available
<b>Solubility in Water</b>		Soluble
<b>Vapor Density (Air = 1)</b>		Not applicable
<b>VOC (%)</b>		No data available
<b>Partition coefficient (n-octanol/water)</b>		No data available
<b>Viscosity</b>		No data available
<b>Auto-ignition Temperature</b>		Not applicable
<b>Decomposition Temperature</b>		No data available
<b>Upper explosive limit</b>		Not applicable
<b>Lower explosive limit</b>		Not applicable
<b>Flammability (solid, gas)</b>		Not applicable

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### 10. STABILITY AND REACTIVITY

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#### Reactivity

No data available.

#### Chemical Stability

Stable under normal conditions.

#### Possibility of hazardous reactions

Hazardous polymerization will not occur.



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### 10. STABILITY AND REACTIVITY

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#### Conditions to Avoid

Contact with incompatible materials

#### Incompatible Materials

Water reactive materials – alkali metals – electrically energized equipment

#### Hazardous Decomposition Products

Oxides of carbon – sulfur oxides – aldehydes – ketones – sodium oxides

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### 11. TOXICOLOGICAL INFORMATION

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#### Acute Toxicity

Diethylene Glycol Monobutyl Ether

Oral LD50 (rat) 3305 mg/kg

Dermal LD5 (rabbit) 2764 mg/kg

Ethylene Glycol

Minimum lethal dose in humans: 1600 mg/kg body weight (estimate)

LD50 Dermal (rabbit) >3500 mg/kg

#### Specific Target Organ Toxicity (STOT) – single exposure

No relevant studies identified.

#### Specific Target Organ Toxicity (STOT) – repeat exposure

Ethylene Glycol: May cause damage to organs (kidney) through prolonged or repeated exposure (oral).

#### Serious Eye damage/Irritation

Diethylene Glycol Monobutyl Ether: Causes serious eye irritation.

Alkyl ether sulfate: Causes serious eye damage. (70% solution)

Surfactant: Irritating to eyes (rabbit).

#### Skin Corrosion/Irritation

Alkyl ether sulfate: Causes skin irritation.

Surfactant: Irritating to skin (rabbit).

#### Respiratory or Skin Sensitization

Surfactant: Not sensitizing to skin in Repeat Insult Patch Test (man)

#### Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA.

#### Germ Cell Mutagenicity

Surfactant: Not mutagenic in Ames Salmonella Assay.

#### Reproductive Toxicity

No relevant studies identified.

#### Aspiration Hazard

Not an aspiration hazard.



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### 12. ECOLOGICAL INFORMATION

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#### Ecotoxicity

LC50 Rainbow trout 180ppm, 3h  
LC50 Rainbow trout 89ppm, 24h  
LC50 Rainbow trout 45ppm, 96h  
EC50 Daphnia Magna 37ppm, 24h  
EC50 Daphnia Magna 10ppm, 48h

#### Mobility in soil

No relevant studies identified.

#### Persistence/Degradability

Readily biodegradable.  
BOD<sub>5</sub>: 0.09 g/g (14% biodegraded)  
BOD<sub>28</sub>: 0.33 g/g (53% biodegraded)  
COD: 0.62 g/g

#### Bioaccumulative Potential

No relevant studies identified.

#### Other adverse effects

No relevant studies identified.

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### 13. DISPOSAL CONSIDERATIONS

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#### Disposal Methods

This product, as sold, is not a RCRA-listed waste or hazardous waste as characterized by 40 CFR 261. However, state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Therefore, applicable local and state regulatory agencies should be contacted regarding disposal of waste foam concentrate or foam/foam solution.

#### Concentrate

Prevent foam concentrate from entering ground water, surface water or storm drains. Small quantities of foam concentrate may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations.

#### Foam/Foam Solution

Prevent foam/foam solution from entering ground water, surface water or storm drains. Small quantities of foam solution may be collected on absorbents which can then be disposed of. Disposal should be made in accordance with local, state and federal regulations.

**NOTE:** Please consult Angus Fire for additional information regarding the disposal of foam concentrates and foam solutions.

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### 14. TRANSPORT INFORMATION

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#### Shipping Information

##### Shipping Description

##### National Motor Freight Code

Fire Extinguisher Charges or Compounds N.O.I., Class 70  
69160 Sub 0

This information is not intended to convey all transportation classifications that may apply to this product. Classifications may vary by container volume and by regional regulations. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules when transporting this material.



# ANGUS FIRE

## SAFETY DATA SHEET – AMS#230 Hi-Ex<sup>®</sup> 1-3 High Expansion Foam Concentrate

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### 15. REGULATORY INFORMATION

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#### United States TSCA Inventory

All components of this product are in compliance with the inventory listing requirements of the US Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

#### Canada DSL Inventory

All ingredients in this product have been verified for listing on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

#### SARA Title III Sect. 311/312 Categorization

Serious eye damage, Skin irritation, Specific Target Organ Toxicity (Repeated Exposure)

#### SARA Title III Sect. 313

This product contains the following chemicals that are listed in Section 313 at or above de minimis concentrations: Diethylene glycol monobutyl ether, Diethylene glycol

#### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

None

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### 16. OTHER INFORMATION

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#### NFPA Ratings

NFPA Code for Health - 3

NFPA Code for Flammability - 0

NFPA Code for Reactivity - 0

NFPA Code for Special Hazards - None

#### Legend

ACGIH: American Conference of Governmental Industrial Hygienists

BOD<sub>5</sub>: Biochemical Oxygen Demand (5 day)

BOD<sub>28</sub>: Biochemical Oxygen Demand (28 day)

CAS#: Chemical Abstracts Service Number

COD: Chemical Oxygen Demand

EC50: Effect Concentration 50%

IARC: International Agency for Research on Cancer

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

N/A: Denotes no applicable information found or available

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

RQ: Reportable Quantity

STEL: Short Term Exposure Limit

N/A: Denotes no applicable information found or available

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

RQ: Reportable Quantity

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

TSCA: Toxic Substance Control Act



**ANGUS  
FIRE**

**SAFETY DATA SHEET – AMS#230**  
**Hi-Ex® 1-3 High Expansion**  
**Foam Concentrate**

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**16. OTHER INFORMATION**

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Revision Date: January 4, 2017  
Replaces: April 29, 2016  
Changes made: Updated to GHS classification.

**Information Source and References**

This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

**Prepared By:** EnviroNet LLC.

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