1. IDENTIFICATION

Product Name: Universal Ultra AR-AFFF Solution (Fire Extinguishing Agent, Pressurized and Non-Pressurized)

Other Names: Alcohol Resistant Aqueous Film Forming Foam

Recommended use of the chemical and restrictions on use:

Identified uses: Fire Extinguishing Agent

Restrictions on use: Do not use on electrically energized equipment. Consult applicable fire protection codes.

Company Identification: Badger Fire Protection
944 Glenwood Station Lane, Suite 303
Charlottesville, VA 22901
USA

Customer Information Number: (434)-964-3200

Emergency Telephone Number:
- CHEMTREC Number: (800) 424-9300
- (703) 527-3887 (International)

Issue Date: April 10, 2015

Supersedes Date: February 9, 2015

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

This SDS covers the product listed above as sold in pressurized and non-pressurized containers. GHS classifications for both forms are listed below.

GHS Classification – Pressurized

Hazard Classification:
Gas under pressure – Compressed gas

Label Elements
Hazard Symbols

Signal Word: Warning

Hazard Statements:
Contents under pressure; may explode if heated.
2. HAZARD IDENTIFICATION

Precautionary Statements
Prevention
None
Response
None
Storage
Protect from sunlight.
Store in well-ventilated place.
Disposal
None

GHS Classification: Non - pressurized

Hazard Classification
This product is classified as not hazardous in accordance with the Globally Harmonized System of Classification and Labelling (GHS).

Label Elements
Hazard Symbols
None

Signal Word: None

Hazard Statements
None

Precautionary Statements
Prevention
None
Response
None
Storage
None
Disposal
None

Other Hazards
Possible electrocution hazard if used on electrically energized equipment.

Specific Concentration Limits
The values listed below represent the percentages of ingredients of unknown toxicity.
Acute oral toxicity   <5%
Acute dermal toxicity <5%
Acute inhalation toxicity <5%
Acute aquatic toxicity <5%
SAFETY DATA SHEET
Universal Ultra AR-AFFF Solution
(Fire Extinguishing Agent, Pressurized and Non-pressurized)

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS Number</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>Synthetic detergent</td>
<td>NA</td>
<td>&lt;1%</td>
</tr>
</tbody>
</table>

Note: Pressurized product uses nitrogen or compressed air as the expellant.

4. FIRST-AID MEASURES

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 if soreness or redness persists.

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.

5. FIRE-FIGHTING MEASURES

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. Keep pressurized containers and surroundings cool with water spray as they may rupture or burst in the heat of a fire.

Specific hazards arising from the chemical
Pressurized containers may explode in heat of fire.

Special Protective Actions for Fire-Fighters
Wear full protective clothing and self-contained breathing apparatus as appropriate for specific fire conditions.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective clothing. Prevent skin and eye contact. Remove leaking container to a safe place. Ventilate the area.

Environmental Precautions
Prevent large quantities of the material from entering drains or watercourses.

Methods and materials for containment and cleaning up
Contain and absorb using appropriate inert material. Transfer into suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Wear appropriate protective clothing. Prevent skin and eye contact.

Conditions for safe storage
Pressurized containers should be properly stored and secured to prevent falling or being knocked over. Do not drag, slide or roll pressurized containers. Do not drop pressurized containers or permit them to strike against each other. Never apply flame or localized heat directly to any part of the pressurized or plastic container. Store pressurized and plastic containers away from high heat sources. Storage area should be: - cool - dry - well ventilated - under cover - out of direct sunlight

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Synthetic Detergent
None

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.

Individual protection measures
Respiratory Protection
Not normally required. In oxygen deficient atmospheres, use a self contained breathing apparatus, as an air purifying respirator will not provide protection.

Skin Protection
Gloves

Eye/Face Protection
Chemical goggles or safety glasses with side shields.

Body Protection
Normal work wear.
9. **PHYSICAL AND CHEMICAL PROPERTIES**

### Non-Pressurized

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Liquid</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Pale yellow</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Mild</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>7 - 8</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>~1.0</td>
</tr>
<tr>
<td><strong>Boiling Range/Point (°C/F)</strong></td>
<td>~100/212</td>
</tr>
<tr>
<td><strong>Melting Point (°C/F)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flash Point (PMCC) (°C/F)</strong></td>
<td>Not flammable</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation Rate (BuAc=1)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Solubility in Water</strong></td>
<td>Soluble</td>
</tr>
<tr>
<td><strong>Vapor Density (Air = 1)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>VOC (g/l)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>VOC (%)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Auto-ignition Temperature</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Decomposition Temperature</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Upper explosive limit</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Lower explosive limit</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### Expellant - Nitrogen

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical State</strong></td>
<td>Compressed gas</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Colorless</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>0.075 lb/ft³ @70°F as vapor</td>
</tr>
<tr>
<td><strong>Boiling Range/Point (°C/F)</strong></td>
<td>-196°C/-321 °F</td>
</tr>
<tr>
<td><strong>Melting Point (°C/F)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flash Point (PMCC) (°C/F)</strong></td>
<td>Not flammable</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Evaporation Rate (BuAc=1)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Solubility in Water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Vapor Density (Air = 1)</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>VOC (g/l)</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>VOC (%)</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Auto-ignition Temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Decomposition Temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Upper explosive limit</strong></td>
<td>Not explosive</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower explosive limit</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Pressurized containers may rupture or explode if exposed to heat.

Chemical Stability
Stable under normal conditions.

Possibility of hazardous reactions
Hazardous polymerization will not occur.

Conditions to Avoid
Exposure to direct sunlight - contact with incompatible materials

Incompatible Materials
Water reactive materials

Hazardous Decomposition Products
Oxides of carbon

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
Available data indicates this product is not expected to be acutely toxic.

Synthetic detergent:
LD50 Oral rat >5000 mg/kg
Nitrogen
Simple asphyxiant

Specific Target Organ Toxicity (STOT) – single exposure
Nitrogen: Exposure to nitrogen gas at high concentrations can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations can cause dizziness, shortness of breath, unconsciousness or asphyxiation.

Specific Target Organ Toxicity (STOT) – repeat exposure
Available data indicates this product is not expected to cause target organ effects after repeated exposure.

Serious Eye damage/Irritation
Synthetic detergent: A 50% solution was found to be severely irritating to eyes in a rabbit study.

Skin Corrosion/Irritation
Synthetic detergent: A 50% solution was found to be non-irritating to skin a rabbit study.
11. TOXICOLOGICAL INFORMATION

Respiratory or Skin Sensitization
No data available.

Carcinogenicity
Not considered carcinogenic by NTP, IARC, and OSHA.

Germ Cell Mutagenicity
Available data indicates this product is not expected to be mutagenic.

Reproductive Toxicity
Available data indicates this product is not expected to cause reproductive toxicity or birth defects.

Aspiration Hazard
Not an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Synthetic detergent
LC50 Fish > 1 – 10 mg/l (based on similar substance)
EC0 Microorganisms >100 mg/l (based on similar substance)

Mobility in soil
No relevant studies identified.

Persistence/Degradability
No relevant studies identified.

Bioaccumulative Potential
No relevant studies identified.

Other adverse effects
No relevant studies identified.

13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of container in accordance with all applicable local and national regulations.

14. TRANSPORT INFORMATION

Safety Data Sheet information is intended to address a specific material and not various forms or states of containment. Specific volumes, pressures or hardware configurations containing such materials can dictate various different hazard classifications for transportation and labelling requirements. Under Federal Regulations only trained and qualified individuals are permitted to label and ship products following the applicable Department of Transportation (DOT), Federal Aviation Administration (FAA), Transport Canada (TC), International Maritime Dangerous Goods (IMDG) or International Air Transport Association (IATA) requirements.
SAFETY DATA SHEET
Universal Ultra AR-AFFF Solution
(Fire Extinguishing Agent, Pressurized and Non-pressurized)

15. REGULATORY INFORMATION

United States TSCA Inventory
This product contains an ingredient that has not been verified for listing on the EPA Toxic Substance Control Act Chemical Substance Inventory.

Canada DSL Inventory
This product contains ingredients that are not listed on the Domestic Substance List (DSL) or the Non-Domestic Substance List (NDSL).

SARA Title III Sect. 311/312 Categorization: Pressurized
Pressure hazard
SARA Title III Sect. 311/312 Categorization: Non-pressurized
None

SARA Title III Sect. 313
This product does not contain any chemicals that are listed in Section 313 at or above de minimis concentrations.

16. OTHER INFORMATION

NFPA Ratings
NFPA Code for Health - 1
NFPA Code for Flammability - 0
NFPA Code for Reactivity - 0
NFPA Code for Special Hazards - None

HMIS Ratings
HMIS Code for Health - 1
HMIS Code for Flammability - 0
HMIS Code for Physical Hazard - 0
HMIS Code for Personal Protection - See Section 8
*Chronic

Legend
ACGIH: American Conference of Governmental Industrial Hygienists
CAS#: Chemical Abstracts Service Number
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
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value
TSCA: Toxic Substance Control Act

Revision Date: April 10, 2015
Replaces: February 9, 2015
Changes made: Updated to GHS Classification.
16. OTHER INFORMATION

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

Prepared By: EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Badger Fire Protection assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the material for their particular purposes. In particular, we make NO WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, with respect to such information, and we assume no liability resulting from its use. Users should ensure that any use or disposal of the material is in accordance with applicable Federal, State, and local laws and regulations.