SAFETY DATA SHEET
LOW PRESSURE POLYURETHANE FOAM
A-SIDE COMPONENT ARMOR FLASH (HFO)

SECTION 1- IDENTIFICATION

1.1 Product Identifier

Product Name: **APOC ARMOR FLASH-SPF**

ID SDS: SD051A

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

General Use: Low pressure polyurethane foam, Side-A Component, for PROFESSIONAL USE ONLY

Uses advised against: No further information available

1.3 Details of the supplier and of the safety data sheet:

Responsible Party:
APOC
PO Box 5449
Tampa, FL 33675
In Florida: 1-813-248-2101 (Monday-Friday, 8:00am – 5:00pm EST)

Manufacturer:
ICP Building Solutions Group
2775 Barber Road
Norton, Ohio 44203
In Ohio: 330-753-4585; 1-800-321-5585 (Monday-Friday, 8:00am – 5:00pm EST)

1.4 Emergency telephone numbers:

In the U.S.A: CHEMTREC (24 hours) 1-800-424-9300

International: CHEMTREC (24 hours) 1-703-527-3887

SECTION 2- HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Mixture

Classification:

Skin Irritation- Category 2
Skin Sensitization- Category 1
Eye Irritation- Category 2A
Acute Toxicity Inhalation- Category 4
Respiratory Sensitizing- Category 1
Specific Target Organ Toxicity, Single Exposure -Category 3 (STOT SE 3)
Specific Target Organ Toxicity, Repeated Exposure- Category 2 (STOT RE 2)

2.2 Label elements

Hazard Symbols:

Signal Word: WARNING

Hazard Statements:

H280 Contains gas under pressure; may explode if heated
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H332 Harmful if inhaled
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 May cause respiratory irritation
H373 May cause damage to organs through prolonged or repeated exposure

Prevention:

P102 Keep Out of Reach of Children
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P260 Do not breathe dust/fume/gas/mist/vapor/spray
P262 Do not get in eyes, on skin, or on clothing
P264 Wash hands and other skin areas exposed to material thoroughly after handling

	P271	Use outdoors or in a well-ventilated area
	P272	Contaminated work clothing should not be allowed out of the workplace
	P280	Wear protective gloves, protective clothing and eye protection
	P284	Wear respiratory protection
Response:		
	P302+P352+P333+P313	IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention
	P304+P341	IF INHALED: if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P308+P313	IF exposed or concerned: Get medical advice.
	P314	Get medical attention if you feel unwell
	P337+P313	If eye irritation persists: Get medical attention
	P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
	P362	Take off contaminated clothing and wash before reuse.
Storage:	P405	Store locked up
	P410+P403	Protect from sunlight. Store in a well-ventilated place.
Disposal:	P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.
Other hazards:		There are no other hazards otherwise classified that have been identified.

SECTION 3-COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical characterization (preparation):

% by Weight	Ingredient	CAS No.
30-60	4,4' Diphenylmethane diisocyanate	101-68-8
30-60	Polymethylene polyphenyl isocyanate	9016-87-9
<10	Nitrogen	7727-37-9
5-10	Trans-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to the health or the environment and hence require reporting in this section.

SECTION 4- FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation: If product vapors causes respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen. If respiratory arrest occurs, start artificial respiration by a trained individual. Loosen tight fitting clothing such as a jacket or tie. Seek medical attention immediately. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening. Persons receiving significant exposure should be observed for 24-48 hours for signs of respiratory distress.

Eye: Immediately flush eyes with large amounts of water for at least 15 minutes, holding the eyes open with fingers and occasionally lifting the upper and lower lids. Use lukewarm water if possible. If present and easy to do, remove contact lenses. If irritation persists, get medical attention.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Gently wipe product from skin with a damp cloth and continue rinsing for 15 minutes. Wash clothing before reuse. Call a physician if irritation persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11.1. Information on toxicological effects.

4.3 Notes to the physician

If case of an accident or if you feel unwell, seek medical advice immediately (show label or SDS if possible). Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high propellant concentrations (enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe victim for the development of cardiac arrhythmias.

SECTION 5- FIRE FIGHTING MEASURES

5.1 Extinguishable media

Suitable methods of extinction: Use dry chemical, carbon dioxide, alcohol resistant foams and water spray

Unsuitable methods of extinction: None

5.2 Special hazards arising from the substance or mixture
Cans, cylinders, or refillable cylinders may explode due to the buildup of pressure when exposed to extreme heat. During a fire, isocyanate vapors or other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Hazardous decomposition products may include and are not limited to: Nitrogen oxides, Hydrogen cyanide, Carbon monoxide, and Carbon dioxide.

5.3 Advice for firefighters
Keep upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to keep fire-exposed containers cool.

SECTION 6- ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear personal protective equipment recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition. Ventilate the area.

6.2 Environmental precautions
Avoid dispersal of spilled material or run-off and prevent contact with soil and entry into drains, sewers or waterways.

6.3 Methods and materials for containment and cleaning up
Cover drains and contain spill. Cover spilled material with a large quantity of inert absorbent. Collect material and place into an approved, open-head metal container. Decontaminate the spill and waste area with a neutralization solution. Wait 15 minutes. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Allow container to vent for 72 hours to let carbon dioxide escape. Dispose of waste via a licensed waste disposal contractor in accordance with all applicable federal, state, provincial and local regulations. Ensure adequate ventilation.

Additional spill procedures- neutralization solutions (decontamination):

Use ten parts of solution for each part of the spill.

(1) An aqueous solution containing 3-8% ammonium hydroxide or concentrated ammonia and 0.2-0.5% liquid detergent
(2) An aqueous solution containing 5-10% sodium bicarbonate and 0.2-0.5% liquid detergent

6.4 Reference to other sections
For indications about waste treatment and disposal, see Section 13
See Section 7 for information about safe handling

SECTION 7- HANDLING AND STORAGE

7.1 Precautions for safe handling
For Industrial or professional use only. Observe label precautions, do not use until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray during application. Use adequate ventilation to keep airborne isocyanate levels below exposure limits. Recommend wearing respiratory protection when spraying this material. Warning symptoms (irritation of the eyes, nose, or throat, or odor) are not adequate to prevent overexposure from inhalation. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed. Avoid contact with skin or eyes. Wear appropriate personal protective equipment during use (see Section 8). Wash thoroughly after handing product. Do not puncture or incinerate cylinders. Containers are under pressure. Keep containers closed when not in use.

Advice on protection against fire and explosion
Contents under pressure. Exposure to high temperatures can cause containers to rupture or explode.

7.2 Conditions for safe storage, including any incompatibilities
Store in a dry, well-ventilated area and away from incompatible materials (see Section 10.5). Storage temperature is 60-90°F (16-32°C). Products stored below 60°F (16°C) or above 90°F (32°C) must be given adequate time to warm up/cool down. Do not expose the cylinders to open flame or temperatures above 122°F (50°C); storage at elevated temperatures can cause the container to rupture. Excessive heat can cause premature aging of components resulting in a shorter shelf life. Protect unused product from freezing. Storage below 60°F (16°C) may affect foam quality if chemicals are not warmed to room temperature before using. Protect containers from physical abuse. Always store the cylinders in the upright position. **KEEP OUT OF REACH OF CHILDREN.**

SECTION 8- EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control Parameters

Ingredient	CAS Number	OSHA-PEL	ACGIH-TLV	Other
4,4' Diphenylmethane diisocyanate	101-68-8	0.2 mg/m^3; 0.02 ppm CEIL	0.051 mg/m^3; 0.005 ppm (8 hours TWA)	**NIOSH**- 0.2 mg/m^3; 0.02 ppm CEIL 0.051 mg/m^3; 0.005 ppm TWA
Trans-1,3,3,3-tetrafluoroprop-1-ene	471-480-0			WEEL 800 ppm

8.2 Exposure controls:
Engineering Controls: Use local and general exhaust ventilation to control levels of exposure.
Eye/face Protection: Wear protective goggles or safety glasses with side shields.

Hand Protection: Use chemically resistant gloves (i.e. Nitrile gloves). Nitrile/butadiene rubber, butyl rubber, polyethylene, PVC (vinyl), or neoprene gloves are also effective. Glove selection should consider potential body reactions to certain materials and manufacturer's instructions for use. Break through time of selected gloves must be greater than the intended use period.
Other Protective Equipment: Use clothing that protects against dermal exposure. Appropriate protective clothing varies depending on the potential for exposure. To ensure proper skin protection, wear PPE in such a manner that no skin is exposed.
Respiratory Protection: Atmospheric levels should be maintained below the exposure guidelines. Use products only in a well-ventilated area. Engineering and administrative (work practices) controls should be implemented to protect the workers. If atmospheric levels are expected to exceed the exposure levels, use a NIOSH approved air purifying respirator equipped with an organic vapor cartridge and a particulate filter. If atmospheric levels exceed 10 times the TLV or PEL level for which an air-purifying respirator is effective, use a powered air purifying respirator (PAPR). The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The odor and irritancy of this material is inadequate to warn of excessive exposure.
Hygiene Measures: An eye wash station or portable eye wash station should be in the area. Wash hands thoroughly after use, before eating, drinking or using the lavatory. Employees/Users should be educated and trained in the safe use and handling of this product.
Medical Surveillance: All employees/end-users who work with isocyanates should undergo a medical evaluation. A history of eczema or respiratory allergies are possible reasons for medical exclusion from working with isocyanates. Users with a prior history of isocyanate sensitization should be excluded from further work with isocyanates. Once a user is diagnosed with being sensitized to isocyanates, no further exposure should be permitted.

SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties	
General Physical Form	Amber to dark brown liquid. Forms an off-white to yellowish froth when released from the container
Odor	Slightly musty
Odor Threshold	No data available
pH	No data available
Melting Point/Freezing Point	No data available
Initial Boiling Point and Boiling Range	MDI boils at 406°F (208°C), HFO-1234$_{ze}$ boils at -19°C (-2.2°F)
Flash Point	MDI 399°F (>204°C) Closed Cup, HFO-1234$_{ze}$ does not flash
Evaporation Rate	No data available
Flammability	No applicable
Lower Flammability/Explosive Limit	Not available
Upper Flammability/Explosive Limit	Not available
Vapor Pressure in Container	Contents under pressure have a vapor pressure >50 psi (>345kPa)
Vapor Pressure of Liquid	Liquid phase vapor pressure: <1 mm Hg @ 40°C
Vapor Density	No data available
Relative Density/Specific Gravity	~ 1.2 @ 25°C (Water = 1)
Solubility	Insoluble; reacts slowly with water during cure, liberating traces of CO_2
Partition coefficient: n-octanol/water	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Oxidizing Properties	Not available
VOC Content (calculated minus exempt compounds)	0 g/L <25 g/L when mixed as intended

SECTION 10- STABILITY AND REACTIVITY

10.1 Reactivity
No dangerous reaction known under conditions of normal use.
10.2 Chemical stability
Stable under normal conditions of use and recommended storage conditions. See Section 7 for storage recommendations.
10.3 Possibility of hazardous reactions
Exposure to elevated temperatures can cause containers to rupture or explode. Avoid moisture, material reacts slowly with water releasing carbon dioxide. Contents are under pressure.
10.4 Conditions to avoid
Temperatures below 60°F (16°C) or temperatures above 90°F (32°C). Avoid heat and flames.
10.5 Incompatible materials
Alcohols, strong bases, amines, metal compounds, ammonia, and strong oxidizers. Avoid contamination with water.
10.6 Hazardous decomposition products
See Section 5.2 for hazardous decomposition products related to combustion.

SECTION 11- TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Signs and Symptoms of Exposure based on test data and/or information on the components, this material may produce the following health effects:

Inhalation: Isocyanates vapors at concentrations above the concentration limits or guidelines can irritate the mucous membranes in the respiratory tract with symptoms of burning sensation, runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (difficulty breathing). Persons with a pre-existing, nonspecific bronchial hyperactivity can respond to concentrations below the exposure limits or guidelines with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the exposure limits or guidelines may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in the lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible; however, increased lung sensitivity may persist for a longer period of time. May be harmful if inhaled. Inhalation of the propellant may cause lightheadedness, headache and lethargy.

Eye Contact: May cause eye irritation. Symptoms may include redness, swelling, stinging, and tearing. May cause temporary corneal injury. Product vapor may cause eye irritation with symptoms of burning and tearing.

Skin Contact: May cause skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. May cause an allergic reaction. Can cause sensitization. Persons previously sensitized can experience allergic skin reactions. May be harmful if absorbed through the skin.

Ingestion: May be harmful if swallowed. May cause gastrointestinal irritation: stomach distress, nausea, or vomiting.

Acute oral toxicity
Expected to have low acute oral toxicity. 4,4'- Diphenylmethane diisocyanate: LD50, rat: >5000 mg/kg
Acute inhalation toxicity
At room temperature, vapors are minimal. See above for possible exposures. 4,4'- Diphenylmethane diisocyanate: LC50, rat: 490 mg/m^3 , 4h
Acute dermal toxicity
Expected to have a low acute dermal toxicity. 4,4'- Diphenylmethane diisocyanate: LD50, rabbit: >5000 mg/kg
Skin irritation
Causes skin irritation
Eye irritation
Causes moderate to serious eye irritation
Sensitization
May cause skin and respiratory sensitization
Genotoxicity
Genetic toxicity data for MDI is inconclusive. Some in-vitro studies yield positive results, while other test data were negative
Mutagenicity
Test data using laboratory animals was predominately negative
Specific organ toxicity- single exposure
May cause respiratory irritation
Specific organ toxicity- repeated exposure
May cause damage to the lungs, central nervous system and skin
Aspiration hazard
No data available

11.2 Further information

MDI and PMDI: IARC Group 3 carcinogen- Not classifiable as to its carcinogenicity to humans. Not listed as a carcinogen by ACGIH, OSHA or NTP. MDI/PMDI did not cause birth defects in laboratory animals; fetal effects occurred only at high doses which were toxic to the mother. Lung tumors have been observed in laboratory animals exposed to respirable aerosol droplets of MDI/PMDI (6mg/m^3) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects.

SECTION 12- ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Ecotoxicological data reported are for a comparable product. The Ecotoxicity is that of the hydrolyzed product generally under conditions of maximizing production of soluble species. This material is not classified as dangerous to aquatic organisms (LD50/EC50 greater than 100 mg/l in the most sensitive species).

Acute and prolonged toxicity to fish: LC50- Brachydanio rerio (Zebra fish), 96h >1000 mg/l
Toxicity to aquatic invertebrates: EC50- Daphnia magna (Water flea) 48h >1000 mg/l
Toxicity to aquatic plants: NOEC- Desmodesmus subspicatus (Green algae) static, 72 h >1640 mg/l, growth rate inhibition
Toxicity to aquatic microbes: OECD 209 Test- Activated Sludge 3 h >100 mg/l, respiration inhibition

Toxicity to soil dwelling organisms: EC50- Eisenia fetida (earthworms) 14 d >1000 mg/kg

12.2 Persistence and degradability

Product is not readily biodegradable. In aquatic and terrestrial environments, this material reacts with water, forming predominantly insoluble and stable polyureas. In the atmospheric environment, this material is expected to have a short tropospheric half-life, based on data from similar diisocyanates.

12.3 Bioaccumulation potential

Bioaccumulation potential is low.

12.4 Mobility

Expected to have low mobility based on product's reactivity with water, which forms predominately insoluble polyureas.

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

Additional ecological information: Do not allow material to run into surface waters, wastewater, or soil. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

SECTION 13- DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Always wear proper protective equipment as you would while spraying the two-component foam in a well-ventilated area.

Procedure for handling empty or partially used disposable cylinders (not returnable):

1. DO NOT INCINERATE CYLINDERS.
2. Empty cylinders by dispensing the foam into a waste container like a cardboard box or plastic bag. Depressurize the used cylinders using the dispensing unit with a new nozzle attached. Spray the foam until one of the components/cylinders no longer sprays chemical.
3. Remove the nozzle and then continue to depressurize by dispensing the remaining chemical(s) into a waste container (a box lined with a plastic bag) that has adequate industrial liquid absorbing medium in the bottom. Dispense the residual chemicals until the pressure is down to a minimum or there are just large bubbles in the hose.
4. Close the cylinder valves completely, and then operate the dispensing unit again to empty and depressurize the hoses. Use a 9/16" wrench and remove the hoses from the cylinders. Use caution in case there is some residual chemical and/or pressure in the hoses.
5. Invert the cylinder and point away from face. Slowly open the cylinder over the waste container to catch any residual spray.
6. Return the cylinder to an upright position. Shake the container; there should not be any sloshing of liquid. Make sure to leave valves OPEN-do not close. DO NOT PUNCTURE.
7. The user of this material has the responsibility to dispose of empty cylinders, unused material and residues in compliance to all applicable federal, state, international and local regulations regarding the treatment, storage, and disposal for hazardous and nonhazardous wastes. Check with your local waste disposal service for guidance.

NOTE: After dispensing if one cylinder has chemical left in it, treat as hazardous material.

SECTION 14- TRANSPORTATION

Note: Transportation information is for reference only. Customer is urged to consult 49 CFR 100-177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

Ground	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-Flammable Gas Label)
Air	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-Flammable Gas Label) Packing Instruction (Cargo & Passenger) 218
Water	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-Flammable Gas Label)

SECTION 15- REGULATORY

15.1 Safety, health, and environmental regulations/legislations specific for the substance or mixture

U.S. Federal Regulations:

OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200

TSCA Status: All components of this product are listed on the Toxic Substance Control Act (TSCA) Inventory. This product is not subject to TSCA 12(b) Export Notification.

Superfund Amendments and Reauthorization Act (SARA)

SARA Section 311/312 Hazard Categories: Acute Health Hazard, Chronic Health Hazard, Sudden Release of Pressure Hazard

SARA 313 Information: MDI and PMDI are subject to reporting levels established by Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.

SARA 302/304 Extremely Hazardous Substance: No components of the product exceed the threshold (de minimis) reporting levels established by these sections of the Title III of SARA.

SARA 302/304 Emergency Planning & Notification: No components of the product exceed the threshold (de minimis) report levels established by these sections of the Title III of SARA.

Comprehensive Response Compensation and Liability Act (CERCLA): This product contains the following CERCLA reportable substances: 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8), RQ- 2,268 kg (5,000 lbs).

Clean Air Act (CAA) - 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b). This product does not contain any Class 1 or Class 2 Ozone depletors.

Clean Water Act (CWA) - 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed as a Hazardous Substance under the CWA. None of the chemicals in these products are listed as Priority Pollutants under the CWA. None of the chemicals listed in these products are listed as Toxic Pollutants under the CWA.

U.S. State Regulations:

California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: None of the chemicals are listed.

Other U.S. State Inventories:

4, 4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/air Pollutants lists: CA, DE, ID, IL, ME, MA, MN, NJ, PA, WA, WI

Polymeric MDI (CAS #9016-87-9) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: DE, NJ, MN

1,1,1,2- Tetrafluoroethane (CAS #811-97-2) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/Air Pollutants lists: ME, WI

Canadian Ingredient Disclosure List (IDL): 4,4'- Diphenylmethane diisocyanate (CAS #101-68-8) is listed on the IDL.

Canadian National Pollutant Release Inventory (NPRI): MDI and PMDI are listed on the NPRI

Global Chemical Inventory Lists:

United States: Toxic Substance Control Act (TSCA)- Yes

Canada: Domestic Substances List (DSL)- Yes

Canada: Non-Domestic Substances List (NDSL)- No

15.2 Chemical safety assessment: For this product a chemical safety assessment was not carried out

SECTION 16- OTHER

NFPA: Health Hazard 2; Flammability 1; Reactivity 1

HMIS: Health Hazard 2; Flammability 1; Physical Hazard 1

Hazard Rating: 0=minimal, 1= slight, 2=moderate, 3=severe, 4= extreme

Abbreviations and acronyms:

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
Gases Under Pressure- Compressed Gas
Skin Irritation- Category 2

Skin Sensitization- Category 1
Eye Irritation- Category 2B
Acute Toxicity Inhalation- Category 4
Respiratory Sensitizing- Category 1
Specific Target Organ Toxicity, Single Exposure -Category 3 (STOT SE 3)
Specific Target Organ Toxicity, Repeated Exposure- Category 2 (STOT RE 2)- Inhalation
SPF- Spray Polyurethane Foam

The information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof. The manufacturer makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving it will make their own determination as to its suitability for their purposes prior to use. In no event will the manufacturer be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. No representations or warranties, either expressed or implied, of merchantability or fitness for a particular use are made hereunder with respect to this information or the product to which information refers.

Information contained herein is deemed to be reliable, conservative and accurate. ICP Building Solutions Group reserves the right to change the design, specifications or any other features at any time and without notice, while otherwise maintaining regulatory compliance.

Revision- August 6, 2021 (Date of Preparation) Version 3.3
Replaces- September 12, 2018 Version 3.2

SAFETY DATA SHEET
LOW PRESSURE POLYURETHANE FOAM
B-SIDE COMPONENT HD (HFO)

SECTION 1- IDENTIFICATION

1.1 Product Identifier

Product Name: **APOC ARMOR FLASH-SPF**

ID SDS: SD051B

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

General Use: Low pressure polyurethane foam, Side-B Component, for PROFESSIONAL USE ONLY
Uses advised against: No further information available

1.3 Details of the supplier and of the safety data sheet:

Responsible Party:
APOC
PO Box 5449
Tampa, FL 33675
In Florida: 1-813-248-2101 (Monday-Friday, 8:00am – 5:00pm EST)

Manufacturer:
ICP Building Solutions Group
2775 Barber Road
Norton, Ohio 44203
In Ohio: 330-753-4585; 1-800-321-5585 (Monday-Friday, 8:00am – 5:00pm EST)

1.4 Emergency telephone numbers:

In the U.S.A: CHEMTREC (24 hours) 1-800-424-9300
International: CHEMTREC (24 hours) 1-703-527-3887

SECTION 2- HAZARDS IDENTIFICATION

2.1 Classification of substance or mixture

Product definition: Mixture
Classification:
Gases Under Pressure- Compressed Gas
Skin Irritation- Category 2
Eye Irritation- Category 2A
Specific Target Organ Toxicity, Repeated Exposure- Category 2 (STOT RE 2)

2.2 Label elements

Hazard Symbols:

Signal Word: WARNING

Hazard Statements:

H280 Contains gas under pressure; may explode if heated
H315 Causes skin irritation
H319 Causes serious eye irritation
H373 May cause damage to organs through prolonged or repeated exposure

Prevention:

P202 Do not handle until all safety precautions have been read and understood
P260 Do not breathe mist/vapors/spray
P264 Wash hands and other skin areas exposed to material thoroughly after handling
P271 Use outdoors or in a well-ventilated area
P280 Wear protective gloves, protective clothing and eye protection
P285 In case of inadequate ventilation: wear respiratory protection

Response:

P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment: Seek immediate medical advice. Refer to product label and Section 4 of this SDS
P333+P313 If skin irritation or rash occurs: Get medical attention
P337+P313 If eye irritation persists: Get medical attention
P362+P364 Take off contaminated clothing and wash before reuse.

Storage:

P405 Store locked up
P410+P403 Protect from sunlight. Store in a well-ventilated place.

Disposal: P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

Other hazards: There are no other hazards not otherwise classified that have been identified.

SECTION 3-COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances
Not applicable

3.2 Mixtures
Chemical characterization (preparation):

% by Weight	Ingredient	CAS No.
20-40	Tris (1-chloro-2-propyl) Phosphate	13674-84-5
10-20	(1E)- 1,3,3,3-tetrafluoro-1-propene	29118-24-9
<10%	2,2' oxybisethanol	111-46-6
<10%	Nitrogen	7727-37-9
<3%	N-cyclohexyl-N-methylcyclohexylamine	7560-83-0
<1%	Ethylene Glycol	107-21-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to the health or the environment and hence require reporting in this section.

SECTION 4- FIRST AID MEASURES

4.1 Description of first aid measures
Inhalation: If product vapors cause respiratory irritation or distress, move the exposed person to fresh air immediately. If breathing is difficult or irregular, administer oxygen. If respiratory arrest occurs, start artificial respiration by a trained individual. Loosen tight fitting clothing such as a jacket or tie. Seek medical attention immediately.

Eye: Immediately flush eyes with large amounts of water for at least 15 minutes, holding the eyes open with fingers and occasionally lifting the upper and lower lids. Use lukewarm water if possible. If present and easy to do, remove contact lenses. If irritation persists, get medical attention.

Skin: Flush skin with large amounts of water while removing contaminated clothing. Gently wipe product from skin with a damp cloth and continue rinsing for 15 minutes. Wash clothing before reuse. Call a physician if irritation persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects

4.3 Notes to the physician
If case of an accident or if you feel unwell, seek medical advice immediately (show label or SDS if possible). Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high propellant concentrations (enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe victim for the development of cardiac arrhythmias.

SECTION 5- FIRE FIGHTING MEASURES

5.1 Extinguishable media
Suitable methods of extinction: Use dry chemical, carbon dioxide, alcohol resistant foams and water spray
Unsuitable methods of extinction: None

5.2 Special hazards arising from the substance or mixture
Cans, cylinders, or refillable cylinders may explode due to the buildup of pressure when exposed to extreme heat. Highly toxic gases may be generated by thermal decomposition or combustion. Overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent or may be delayed. Hazardous decomposition products may include and are not limited to: Carbon monoxide, Carbon dioxide, Aldehydes, Oxides of Nitrogen.

5.3 Advice for firefighters
Keep upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to keep fire-exposed containers cool.

SECTION 6- ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures
Wear personal protective equipment recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Eliminate sources of ignition. Ventilate the area.

6.2 Environmental precautions
Avoid dispersal of spilled material or run-off and prevent contact with soil and entry into drains, sewers, or waterways.

6.3 Methods and materials for containment and cleaning up
Cover drains and contain spill. Cover spilled material with a large quantity of inert absorbent. Collect material and place into an approved, open-head metal container. Clean contaminated area with soap and water.

6.4 Reference to other sections
For indications about waste treatment and disposal, see Section 13.
See section 7 for information about safe handling

SECTION 7- HANDLING AND STORAGE

7.1 Precautions for safe handling
For Industrial or professional use only. Observe label precautions, do not use until all safety precautions have been read and understood. Wear all appropriate protective equipment specified in Section 8. Keep cylinders/valves closed when not in use. Recommend using in a well-ventilated area with respiratory protection. Avoid contact with eyes and skin. Keep out of reach of children.

Advice on protection against fire and explosion
Chemicals under pressure. Exposure to high temperatures can cause containers to rupture or explode.

7.2 Conditions for safe storage, including any incompatibilities
Store in a dry, well-ventilated area and away from incompatible materials (see Section 10.5). Storage temperature is 60-90°F (16-32°C). Products stored below 60°F (16°C) or above 90°F (32°C) must be given adequate time to warm up/cool down. Do not expose the tanks/kits to open flame or temperatures above 122°F (50°C); storage at elevated temperatures can cause the container to rupture. Excessive heat can cause premature aging of components resulting in a shorter shelf life. Protect unused product from freezing. Storage below 60°F (16°C) may affect foam quality if chemicals are not warmed to room temperature before using. Protect containers from physical abuse. Always store the containers in the upright position. **KEEP OUT OF REACH OF CHILDREN.**

SECTION 8- EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control Parameters

Ingredient	CAS Number	OSHA-PEL	ACGIH-Ceiling Limit Value	Other
Diethylene glycol	111-46-6			WEEL 10 mg/kg
Trans-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9			WEEL 800 ppm
Ethylene glycol	107-21-1		100 mg/m^3	

8.2 Exposure controls:
Engineering Controls: Use local and general exhaust ventilation to control levels of exposure.
Eye/face Protection: Wear protective goggles or safety glasses with side shields.
Hand Protection: Use chemically resistant gloves (i.e. Nitrile gloves). Nitrile/butadiene rubber, butyl rubber, polyethylene, PVC (vinyl), or neoprene gloves are also effective. Glove selection should consider potential body reactions to certain materials and manufacturer's instructions for use. Break through time of selected gloves must be greater than the intended use period.
Other Protective Equipment: Use clothing that protects against dermal exposure. Appropriate protective clothing varies depending on the potential for exposure. To ensure proper skin protection, wear PPE in such a manner that no skin is exposed.
Respiratory Protection: Atmospheric levels should be maintained below the exposure guidelines. Use products only in a well-ventilated area. Engineering and administrative (work practices) controls should be implemented to protect the workers. If atmospheric levels are expected to exceed the exposure levels, use a NIOSH approved air purifying respirator equipped with an organic vapor cartridge and a particulate filter. If atmospheric levels exceed 10 times the TLV or PEL level for which an air-purifying respirator is effective, use a powered air purifying respirator (PAPR). The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The odor and irritancy of this material is inadequate to warn of excessive exposure.
Hygiene Measures: An eye wash station or portable eye wash station should be in the area. Wash hands thoroughly after use, before eating, drinking, or using the lavatory. Employees/Users should be educated and trained in the safe use and handling of this product.

SECTION 9- PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties	
General Physical Form	Amber to dark brown liquid. Forms an off-white to yellowish froth when released from the container
Odor	Slight ether and amine odor
Odor Threshold	No data available
pH	No data available
Melting Point/Freezing Point	No data available
Initial Boiling Point and Boiling Range	Propellant -19°C (-2.2°F)
Flash Point	Propellant does not flash
Evaporation Rate	No data available
Flammability	No applicable
Lower Flammability/Explosive Limit	Not available
Upper Flammability/Explosive Limit	Not available
Vapor Pressure in Container	Not available
Vapor Pressure of Liquid	Not available
Vapor Density	No data available
Relative Density/Specific Gravity	~ 1.2 @ 25°C (Water = 1)
Solubility	Water: partly soluble, does not react
Partition coefficient: n-octanol/water	No data available
Auto-ignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available
Oxidizing Properties	Not available
VOC Content (calculated minus exempt compounds)	When mixed as intended with Component A < 25 g/L (minus exempt compounds)

SECTION 10- STABILITY AND REACTIVITY

10.1 Reactivity
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability
Stable under normal conditions of use and recommended storage conditions. See Section 7 for storage recommendations.

10.3 Possibility of hazardous reactions
Exposure to elevated temperatures can cause containers to rupture or explode. Contents are under pressure.

10.4 Conditions to avoid
Temperatures below 60°F (16°C) or temperatures above 90°F (32°C). Avoid heat and flames.

10.5 Incompatible materials
Alcohols, strong bases, amines, metal compounds, ammonia, and strong oxidizers.

10.6 Hazardous decomposition products
See Section 5.2 for hazardous decomposition products due to combustion.

SECTION 11- TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Signs and Symptoms of Exposure based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Mist or vapor may cause irritation of the nose, throat and respiratory tract. Symptoms may include sore throat, coughing, headache, nausea and shortness of breath. Inhalation of propellant may cause lightheadedness, headache and lethargy.

Skin Contact:
May cause mild skin irritation. Symptoms may include localized redness and discomfort.

Eye Contact:
May cause serious eye irritation. Symptoms may include redness, swelling, stinging, and tearing. May cause temporary corneal injury. Product vapor may cause eye irritation with symptoms of burning and tearing.

Ingestion:
May cause gastrointestinal irritation: stomach distress, nausea, or vomiting. Repeated ingestion may be harmful.

Acute toxicity:
LD/LC50 Values that are relevant for classification: None
Primary irritant effect:
On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect
Sensitization: Based on available data, the classification criteria are not met
IARC (International Agency for Research on Cancer): None of the ingredients are listed.
NTP (National Toxicology Program): None of the ingredients are listed
OSHA-Ca (Occupational Safety & Health Administration): None of the ingredients are listed
Probable routes of exposure: Inhalation, eye contact and skin contact.
Acute effects (acute toxicity, irritation and corrosivity): Irritating to eyes and skin.
CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
Germ cell mutagenicity: Based on available data, the classification criteria are not met
Specific organ toxicity- single exposure
No data available
Specific organ toxicity- repeated exposure
May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard
No data available

11.2 Further information

None of the components of this product are listed as carcinogens by IARC, ACGIH, NTP or OSHA. No data is available regarding the mutagenicity or teratogenicity of this product, nor is there any available data that indicates that it causes adverse or fertility effects.
Chronic toxicity from prolonged and repeated exposure to Diethylene glycol (DEG) is associated with kidney, and to a lesser degree liver effect
Available data indicates that DEG is negative in in-vitro genotoxicity tests. Some positive results were obtained in in-vivo genotoxicity studies, however, only at high toxic doses of DEG. Overall, DEG is considered non-genotoxic. Several animal reproductive toxicity studies indicate that human data or case reports on reproductive and developmental effects of DEG are available. Ethylene Glycol: Exposure to vapors of ethylene glycol at room temperature is expected to be minimal. Ethylene glycol may cause birth defects. If a large amount of vapors are allowed to accumulate, the material may cause respiratory irritation and symptoms such as headache and nausea.
Handle in accordance with good industrial hygiene and safe practices.

SECTION 12- ECOLOGICAL INFORMATION

12.1 Ecotoxicity

The ecotoxicity of this product has not been experimentally determined. However, it is expected to have low acute aquatic toxicity based on the acute aquatic toxicity of the individual components and their concentrations in this composition.

12.2 Persistence and degradability
Product is readily biodegradable.
12.3 Bioaccumulation potential
Product is not expected to bioaccumulate
12.4 Mobility
No data available
12.5 Results of PBT and vPvB assessment
No data available
12.6 Other adverse effects
Additional ecological information: Do not allow material to run into surface waters, wastewater, or soil. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

SECTION 13- DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods
Always wear proper protective equipment as you would while spraying the two-component foam in a well-ventilated area.
Procedure for handling empty or partially used disposable cylinders (not returnable):
1. DO NOT INCINERATE CYLINDERS.
2. Empty cylinders by dispensing the foam into a waste container like a cardboard box or plastic bag. Depressurize the used cylinders using the dispensing unit with a new nozzle attached. Spray the foam until one of the components/cylinders no longer sprays chemical.
3. Remove the nozzle and then continue to depressurize by dispensing the remaining chemical(s) into a waste container (a box lined with a plastic bag) that has adequate industrial liquid absorbing medium in the bottom. Dispense the residual chemicals until the pressure is down to a minimum or there are just large bubbles in the hose.
4. Close the cylinder valves completely, and then operate the dispensing unit again to empty and depressurize the hoses. Use a 9/16” wrench and remove the hoses from the cylinders. Use caution in case there is some residual chemical and/or pressure in the hoses.
5. Invert the cylinder and point away from face. Slowly open the cylinder over the waste container to catch any residual spray.
6. Return the cylinder to an upright position. Shake the container; there should not be any sloshing of liquid. Make sure to leave valves OPEN-do not close. DO NOT PUNCTURE.
7. The user of this material has the responsibility to dispose of empty cylinders, unused material and residues in compliance to all applicable federal, state, international and local regulations regarding the treatment, storage, and disposal for hazardous and nonhazardous wastes. Check with your local waste disposal service for guidance.
NOTE: After dispensing if one cylinder has chemical left in it, treat as hazardous material

SECTION 14- TRANSPORTATION

Note: Transportation information is for reference only. Customer is urged to consult 49 CFR 100-177, IMDG, IATA, EC, United Nations TDG and WHMIS (Canada) TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

Ground	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-Flammable Gas Label)
Air	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-flammable Gas Label) Packing Instruction (Cargo & Passenger) 218
Water	UN3500 Chemical Under Pressure n.o.s. (Hydrofluoroolefin, nitrogen) 2.2 (Non-flammable Gas Label)

SECTION 15- REGULATORY

15.1 Safety, health, and environmental regulations/legislations specific for the substance or mixture

U.S. Federal Regulations:
OSHA Hazard Communication Standard: This material is classified as hazardous in accordance with OSHA 29 CFR 1910-1200
TSCA Status: All components of this product are listed on the Toxic Substance Control Act (TSCA) Inventory. This product is not subject to TSCA 12(b) Export Notification.
Superfund Amendments and Reauthorization Act (SARA)
SARA Section 311/312 Hazard Categories: Acute Health Hazard, Sudden Release of Pressure Hazard
SARA 313 Information: No components of the product are subject to reporting levels established by Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986.
SARA 302/304 Extremely Hazardous Substance: No components of the product exceed the threshold (de minimis) reporting levels established by these sections of the Title III of SARA.
SARA 302/304 Emergency Planning & Notification: No components of the product exceed the threshold (de minimis) report levels established by these sections of the Title III of SARA.
Comprehensive Response Compensation and Liability Act (CERCLA): None of the substances in this product are contained in levels that exceed the threshold (de minimis) reporting levels established by CERCLA
Clean Air Act (CAA) – This product does not have any components listed as a Hazardous Air Pollutant (HAP) designated in CAA Section 112 (b). This product does not contain any Class 1 or Class 2 Ozone depletors.
Clean Water Act (CWA) – This product does not have any components listed as a Hazardous Substance under the CWA. None of the chemicals in these products are listed as Priority Pollutants under the CWA. None of the chemicals listed in these products are listed as Toxic Pollutants under the CWA.

U.S. State Regulations:
California Prop 65, Safe Drinking Water and Toxic Enforcement Act of 1986: WARNING! Cancer & Reproductive Harm- www.P65Warnings.ca.gov

Other U.S. State Inventories:
Diethylene glycol (CAS #111-46-6) is listed on the following State Hazardous Substance Inventories, Right-to-Know lists and/or Air Quality/air Pollutants lists: MN, PA.

Global Chemical Inventory Lists:
United States: Toxic Substance Control Act (TSCA)- Yes, all of the components are listed on TSCA
Canada: Domestic Substances List (DSL) – Yes, all of the components are listed on the DSL
Canada: Non-Domestic Substances List (NDSL)- No

15.2 Chemical safety assessment: For this product a chemical safety assessment was not carried out

SECTION 16- OTHER

NFPA: Health Hazard 2; Flammability 1; Reactivity 1
HMIS: Health Hazard 2; Flammability 1; Physical Hazard 1
Hazard Rating: 0=minimal, 1= slight, 2=moderate, 3=severe, 4= extreme

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
Press. Gas: Gases under pressure – Compressed gas
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Specific Target Organ Toxicity, Repeated Exposure- Category 2 (STOT RE 2)

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Revision- August 6, 2021 (Date of Preparation) Version 1.0