



Submittal Form

BASF Spray Polyurethane Foam Systems For Commercial and Residential Applications

Submitted to: _____

Phone: _____

Job reference: _____

Job name: _____

Job Location: _____

Submitted by: _____

Date: _____

Phone: _____

This submittal form is provided to assist in the specification of the BASF Spray Polyurethane Foam Insulation systems. Basic product descriptions, physical properties and general guidelines for use are included. For further technical information or assistance, contact your local BASF representative or utilize our website (www.spf.basf.com) for the available downloads for reference.



ENERTITE™ Open-cell, Low Density Spray Polyurethane Foam

PRODUCT DESCRIPTION:

ENERTITE is a two-component low-density open-cell spray polyurethane foam system designed for use in residential and commercial construction insulation system applications. ENERTITE is a water blown system that is compatible with most common construction materials, but can only be processed with ELASTOSPRAY® 8000A Isocyanate. There are three options in this open cell product series Enertite G, IB418, and NM.

The benefits of ENERTITE include:

- Superior insulation performance
- Ease of application
- Non-fibrous
- Controls air infiltration
- Sound control

APPROVALS AND CREDENTIALS:

ICC ESR-3102, Intertek CCRR-1032

<u>ASTM E-84* Product Listing</u>	<u>NFPA 286/IBC 803**</u>	<u>Appendix X (Limited Attics & Crawls)**</u>
Class I (SPF Thickness 4.0 inches)	11.25 inch wall	Enertite G & NM - 11.25 inch wall / 16 inch ceiling
Flame Spread Index = 25	16 inch ceiling	with intumescent coatings (see ESR)
Smoke Development Index = 450	with 15 min. thermal barrier	Enertite IB-418 - No coating required – (Limitations described in Section X2.2 of AC377)

* - This numerical flame spread rating does not reflect hazards presented by this or any other material under actual fire conditions. Polyurethane foam systems should not be left exposed (unless allowed per code) and must be protected by a minimum 15-minute thermal barrier or other code-compliant material (ignition barriers or other approved assemblies) as allowed by applicable building code(s) and Code Officials.

**ASTM E-84 is a test designed for sample thickness up to 4 inches. NFPA 286 and modified NFPA (App X) are building code / ICC recognized alternative tests that are conducted for greater thickness applications of spray foam. These two test reports can then be used by design professionals for their product selection process for projects.

TYPICAL PROPERTIES***:

<u>PROPERTY OF CURED FOAM</u>	<u>VALUE</u>	<u>TEST METHOD</u>
Density (pcf @ 4" lift)	0.5 (nominal, G), 0.6 (nominal IB418, NM)	ASTM D 1622
Tensile Strength (psi)	3.3 - 5.9	ASTM D 1623 Type C
Open Cell Content (%)	>90	ASTM D 6226
Water Absorption (%)	<40%	ASTM D 2842
Aged k-factor (Btu in/ft ² hr °F)	0.256 (R-value=3.9-4.1/in)*** @ 1"	ASTM C 518
In conformance with ICC AC377	0.270 (R-value =3.7-3.8/in)*** @ 4"	ASTM C 518
Permeability (perm inch)	59	ASTM E 96
Permeance (perms)	16.9 @ 5.5"	
Air Leakage	<0.02 L/s/m ² @ 75Pa at 3.5"	ASTM E 283-99
Dimensional Stability (% Linear Change):		
Dry Age 168 Hrs (158°F / 97% RH)	<-2.0	ASTM D 2126
Sound Transmission Class (STC)	36 (2x4 assembly filled)	ASTM E 90
Noise Reduction Coefficient (NRC)	0.55	ASTM C 423

*** - These physical property values are typical for this material as applied at our development facility under controlled conditions. SPF performance and actual physical properties will vary with differences in application (i.e. ambient conditions, process equipment and settings, material throughput, etc). As a result, these published properties should be used as guidelines solely for the purpose of evaluation. Physical property specifications should be determined from actual production material.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY:

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are only intended for sale to industrial and commercial customers. Customer assumes full responsibility for quality control, testing and determination of suitability of products for its intended application or use. We warrant that our products will meet our written liquid component specifications. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability or fitness for a particular purpose. Our total



liability and customers' exclusive remedy for all proven claims is replacement of nonconforming product and in no event shall we be liable for any other damages.

Installed R-value Chart

All SPF Cavity Options Frame Wall Sizing (Wood)	Enertite G & NM			Enertite IB 418	
	Total R-value****	U-factor*****	OC SPF (inch)	Total R-value****	U-factor*****
2x4	14	0.073	3.5"	14	0.070
2x6	12	0.085	3"	12	0.081
2x6	15	0.068	4"	15	0.066
2x6	20	0.049	5.5"	21	0.048
2x8	19	0.054	5"	19	0.053
2x8	22	0.045	6"	23	0.044
2x8	28	0.036	7.5"	29	0.035
2x10	30	0.034	8"	30	0.033
2x10	35	0.028	9.5"	36	0.028
2x12	37	0.027	10"	38	0.026
2x12	43	0.024	11.5"	44	0.023
Roof Joists	44	0.023	12"	46	0.022
Roof Joists	48	0.021	13"	49	0.020
Roof Joists	52	0.019	14"	53	0.019
Roof Joists	56	0.018	15"	57	0.018
Roof Joists	59	0.017	16"	61	0.016

****The data chart shows the R-value of this insulation. "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation will depend upon the climate, the type and size of your house, and the fuel use patterns and family size. If you buy too much insulation it will cost you more than what you will save on fuel. To achieve proper R-values, it is essential that this insulation be installed properly.

*****U-factor is the inverse of R-value as represented in BTU/(h °F ft²). The lower the number, the better the performance of the material or assembly. U-factor is allowed when utilizing the Prescriptive U-factor approach; where U-factor is met, this may be used in lieu of prescriptive R-value. If used in a rafter assembly in a sealed attic approach, the SPF should be wrapped around all framing to ensure continuity.

GENERAL INFORMATION:

ENERTITE is a spray polyurethane foam (SPF) system intended for installation by qualified contractors trained in the processing and application of SPF systems, as well as the plural-component polyurethane dispensing equipment required to do so. Contractors and applicators must comply with all applicable and appropriate storage, handling, processing and safety guidelines. BASF Corporation technical service personnel should be consulted in all cases where application conditions are questionable.

CAUTIONS AND RECOMMENDATIONS:

ENERTITE is designed for an application rate of ½ inch minimum to 6 inches maximum per pass. Once the installed material has cooled it is possible to add additional applications in order to increase the overall installed thickness of SPF.

ENERTITE is NOT designed for use as an EXTERIOR roofing system. BASF Corporation offers a separate line of products for exterior roofing applications. For more information please contact your sales representative.

Cold-storage structures such as coolers and freezers demand special design considerations with regard to thermal insulation and moisture-vapor drive. ENERTITE should NOT be installed in these types of constructions unless the structure was designed by a design professional for specific use as cold storage.

ENERTITE is designed for installation in most standard construction configurations using common materials such as wood and wood products, metal and concrete. ENERTITE has performed successfully when sprayed onto wood substrates down to 40°F. For other substrates and lower temperatures, please consult your BASF sales or technical service representative for specific recommendations.

Foam plastic materials installed in walls or ceilings may present a fire hazard unless protected by an approved, fire resistant thermal barrier with a finish rating of not less than 15 minutes as required by building codes. Rim joists/header areas, in accordance with the IRC and IBC, may not require additional protection. Foam plastic must also be protected against ignition by code prescribed or properly tested materials in attics and crawl spaces. See relevant Building Codes and www.iccsafe.org for more information.

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Houston, TX 77054
Tel: 800-706-0712
www.spf-basf.com

Internal

ENERTITE® G LOW-DENSITY, OPEN-CELL INSULATION

Open-Cell Spray Polyurethane Foam Insulation



DESCRIPTION:

ENERTITE G is a two-component low-density open-cell spray polyurethane foam system designed for use in residential construction and common commercial insulation applications. ENERTITE G is compatible with most common construction materials, but can only be processed with ELASTOSPRAY® 8000A Isocyanate. The benefits of ENERTITE G include:

- Superior insulation
- Non-fibrous
- Sound control

TYPICAL PROPERTIES⁽¹⁾:

PROPERTY	METHOD	ENERTITE G
Resin:		
Specific Gravity @ 70°F	ASTM D 1638	1.135
Viscosity @ 77°F (cps)	Brookfield	350
Cured Foam:		
Density, core (pcf @ 4" lifts)	ASTM D 1622	0.5 (nominal)
Open Cell Content (%)	ASTM D 6226	>90
Thermal Resistance (aged)		
R-value (ft ² hr °F/Btu in) ⁽²⁾	ASTM C518	3.9 / in @ 1-in thick 3.7 / in @ 4-in thick
Response to Thermal and Humid Aging (% linear change)		
158°F / 97% RH / 168 hrs	ASTM D 2126	< -2.0
Water Absorption (vol %)	ASTM D 2842	> 40%
Tensile Strength	ASTM D 1623	5.9 psi
Water Vapor Transmission – 3.5-in foam thickness		
Permeability (Perm-inch)	ASTM E 96	59 (Calculated)
Permeance (Perm)	ASTM E 96	16.9
Surface Burning Characteristics		
Flame Spread Index ⁽³⁾	ASTM E 84	≤ 25
Smoke Developed Index	ASTM E 84	≤ 450

(1) These physical property values are typical for this material as applied at our development facility under controlled conditions. SPF performance and actual physical properties will vary with differences in application (i.e. ambient conditions, process equipment and settings, material throughput, etc.). As a result, these published properties should be used as guidelines solely for the purpose of evaluation. Physical property specifications should be determined from actual production material.

The above data was collected from samples prepared using equipment configurations pertinent to lab conditions. Parameters can be obtained upon request by calling 800-706-1712.

(2) The data chart shows the R-value of this insulation. "R" means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation will depend upon the climate, the type and size of your house, and the fuel use patterns and family size. If you buy too much insulation it will cost you more than what you will save on fuel. To achieve proper R-values, it is essential that this insulation be installed properly.

(3) This numerical flame spread rating does not reflect hazards presented by this or any other material under actual fire conditions. Polyurethane foam systems should not be left exposed and must be protected by a minimum 15-minute thermal barrier or other code-compliant material as allowed by applicable building code(s) and Code Officials. Building Codes provide guidelines representing minimum requirements. Further information is available at www.iccsafe.org. Consult all Authorities Having Jurisdiction (AHJ) over an area for additional or specific requirements prior to beginning any project.

ADDITIONAL TESTING, APPROVALS & CERTIFICATIONS:

- ASTM E 84 (Class I) with Product Listing^{(3) (4)}
- NFPA 285 complying assemblies available
- Fire Resistant assemblies available
- INTERTEK Code Compliance Research Report CCRR-1032
- Thickness is not limited when installed behind a code-prescribed thermal barrier (per ICC-ES AC377)
- Approved for certain Attic & Crawl Space installations with and without prescriptive ignition barriers per ICC-ES AC377, Appendix A1.2.2 and Appendix X

CRITICAL RADIANT FLUX (attic insulation)

PROPERTY	METHOD	ENERTITE G
Critical Radiant Flux, 4-in foam thickness	ASTM E970	0.26 W/cm ²
Critical Radiant Flux, 6-in foam thickness	ASTM E970	0.25 W/cm ²

AIR LEAKAGE

PROPERTY	METHOD	ENERTITE G
Air Leakage, 3.5-in foam thickness (L/s·m ² @ 75 Pa ΔP)	ASTM E 283	<0.02 L/s·m ²

- GREENGUARD and GREENGUARD Gold Certification for VOC emissions
- Meets the requirements of CDPH Section 01350 for VOC emissions and formaldehyde
- Mold resistant per ASTM C1338 – "Pass" rating (no growth)

ADDITIONAL INFORMATION:

Odor level of spray polyurethane foam is dependent on proper application using the recommended processing parameters and proper ventilation.

Caution - Failure to follow the application precautions, safety data sheet information as well as accepted industry practices (www.spraypolyurethane.org) may result in unwanted foam physical properties and applications that may not provide the desired results. This also includes unwanted health risks such as possible respiratory issues, sensitization or eye irritations such as blue haze for applicators and workers located in the area being sprayed. A full understanding of the foam processing and all safety risks must be completed before spraying. Call our BASF spray foam team if you have questions 800-706-0712.

Please contact your local Sales or Technical Representative for specific questions regarding ENERTITE G properties, approvals, or certifications.

(4) ASTM E 84 is a test designed for sample thickness up to four (4) inches. NFPA 286 is a building code recognized alternative test conducted on large-scale assemblies to evaluate foam thickness in excess of four (4) inches as permitted in 2012 IBC Section 2603.10; 2006 & 2009 IBC Section 2603.9; 2009 & 2012 IRC Section R316.6; 2006 IRC Section R314.6.



ENERTITE® G LOW-DENSITY OPEN-CELL INSULATION

GENERAL INFORMATION:

ENERTITE G is a spray polyurethane foam (SPF) system intended for installation by qualified contractors trained in the processing and application of SPF systems, as well as the plural-component polyurethane dispensing equipment required to do so. Contractors and applicators must comply with all applicable and appropriate storage, handling, processing and safety guidelines. BASF technical service personnel should be consulted in all cases where application conditions are questionable.

ENERTITE G has an estimated theoretical yield range of 17,000-21,000 board feet per set. Actual yield performance can be in excess of or below the referenced estimated theoretical range based on factors affecting density including, however, not limited to: multiple lifts, spray pass thickness, substrate texture, substrate temperature, overspray loss, windy conditions, altitude, container residue, equipment characteristics & temperatures, applicator technique, etc. For help estimating yield for this and other spray foams, please consult Spray Polyurethane Foam Alliance's SPFA-121 SPF Estimating Reference Guide.

CAUTIONS AND RECOMMENDATIONS:

ENERTITE G is designed for an application rate of ½ inch minimum to 6 inches maximum per pass. Once installed and material has cooled, it is possible to add additional applications in order to increase the overall installed thickness of SPF. Thicker installations are allowed based on large scale testing. Please see ESR-3102 for additional information. This application procedure is in compliance with the Spray Polyurethane Foam Alliance (SPFA).

ENERTITE G is NOT designed for use as an EXTERIOR roofing system. BASF offers a separate line of products for exterior roofing applications. For more information, please contact your sales representative.

Cold-storage structures such as coolers and freezers demand special design considerations with regard to thermal insulation and moisture-vapor drive. ENERTITE G should NOT be installed in these types of constructions unless the structure was designed by a design professional for specific use as cold storage.

ENERTITE G is designed for installation in most standard construction configurations using common materials such as wood and wood products, metal and concrete. ENERTITE G has performed successfully when sprayed onto wood substrates down to 20°F and can be used in colder temperatures using special cold weather application guidelines. For cold weather applications and when spraying onto heat sink-materials such as metal or concrete, ENERTITE G can be sprayed using a flash pass method to enhance adhesion. BASF recommends the use of mock ups or test spray areas before starting the full-scale project to evaluate material performance in current conditions, as well as to ensure proper processing is occurring to create a suitable finished product.

Climate	A side, B side, Hose Temp (Adjust in +/- 5° increments)	Proportioner set pressure (Spraying pressure)
Colder	125°F – 135°F	1150 – 1450 psi (900 – 1200 psi)
Warmer	105°F – 125°F	1150 – 1450 psi (900 – 1200 psi)

Foam plastic materials installed in walls or ceilings may present a fire hazard unless protected by an approved, fire-resistant thermal barrier with a finish rating of not less than 15 minutes as required by building codes. Rim joists/header areas, in accordance with the IRC and IBC, may not require additional protection. Foam plastic must also be protected against ignition by code prescribed or properly tested materials in attics and crawl spaces. See relevant Building Codes and www.iccsafe.org for more information.

In addition to reading and understanding the SDS, all contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems. Personnel should review the following documents published by Spray Polyurethane Foam Alliance (SPFA): AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings www.spraypolyurethane.org

Also, the following document is available from the Center for the Polyurethanes Industries (CPI): *Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration's Respiratory Protection Program Standard 29 C.F.R. §1910.134*

As with all SPF systems, improper application techniques should be avoided. Examples of improper application techniques include, but are not limited to excessive thickness of SPF, off-ratio material and spraying into or under rising SPF. Potential results of improperly installed SPF include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed SPF must be removed and replaced with properly installed materials.

LARGE MASSES of SPF should be removed to an outside safe area, cut into smaller pieces and allowed to cool before discarding into an appropriate trash receptacle.

All areas that are sprayed incorrectly or result in A only material, B only material, improperly mixed or off ratio materials, too thick of an application or two quick of a thickness build up, are to be removed and replaced with properly processed spray foam. All cleaning solvents and others materials are to be captured and properly disposed of and not left at the job site.

SPF insulation is combustible. High-intensity heat sources such as welding or cutting torches must not be used in contact with or in close proximity to ENERTITE G or any polyurethane foam. The insulation must not be used in areas that have a maximum service temperature greater than 180°F(82°C).

SHELF LIFE AND STORAGE CONDITIONS:

ENERTITE G has a shelf life of approximately Six (6) months from the date of manufacture when stored in original, unopened containers at 50-80°F. As with all industrial chemicals, this material should be stored in a covered, secure location and never in direct sunlight. Storage temperatures above the recommended range will shorten shelf life. Storage temperatures above the recommended range may also result in elevated headspace pressure within packages.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY:

The information herein is to assist customers in determining whether our products are suitable for their applications. Our products are only intended for sale to industrial and commercial customers. Customer assumes full responsibility for quality control, testing and determination of suitability of products for its intended application or use. We warrant that our products will meet our written liquid component specifications. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability or fitness for a particular purpose. Our total liability and customers' exclusive remedy for all proven claims is replacement of nonconforming product and in no event shall we be liable for any other damages.

While descriptions, designs, data and information contained herein are presented in good faith and believed to be accurate, they are provided for guidance only. Because many factors may affect processing or application/use, BASF recommends that the reader make tests to determine the suitability of a product for a particular purpose prior to use. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made regarding products described or designs, data or information set forth, or that the products, designs, data or information may be used without infringing the intellectual property rights of others. In no case shall the descriptions, information, data or designs provided be considered a part of BASF's terms and conditions of sale. Further the descriptions, designs, data, and information furnished by BASF hereunder are given gratis and BASF assumes no obligation or liability for the description, designs, data or information given or results obtained all such being given and accepted at the reader's risk.

Warning: These products can be used to prepare a variety of polyurethane products. Polyurethanes are organic materials and must be considered combustible.

Safety Data Sheet

ENERTITE G RESIN

Revision date : 2017/10/12
Version: 2.0

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(30685345/SDS_GEN_US/EN)

1. Identification

Product identifier used on the label

ENERTITE G RESIN

Recommended use of the chemical and restriction on use

Recommended use*: polyurethane component; industrial chemicals
Suitable for use in industrial sector: Polymers industry; chemical industry

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: resin
Synonyms: Urethane System Resin Component

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Skin Corr./Irrit.	1B	Skin corrosion/irritation
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT RE	2 (oral)	Specific target organ toxicity — repeated exposure
Aquatic Acute	3	Hazardous to the aquatic environment - acute
Aquatic Chronic	3	Hazardous to the aquatic environment - chronic

Safety Data Sheet

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Label elements

Pictogram:



Signal Word:
Danger

Hazard Statement:

H373 May cause damage to organs (Kidney) through prolonged or repeated exposure (oral).
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P273 Avoid release to the environment.
P260 Do not breathe dust/gas/mist/vapours.
P264 Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Precautionary Statements (Storage):

P405 Store locked up.

Precautionary Statements (Disposal):

P501 Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

<u>CAS Number</u>	<u>Weight %</u>	<u>Chemical name</u>
13674-84-5	>= 15.0 - < 20.0%	tris(2-chloro-1-methylethyl)phosphate
127087-87-0	>= 5.0 - < 15.0%	4-Nonylphenol, branched, ethoxylated
2212-32-0	>= 5.0 - < 7.0%	2-((2-(dimethylamino)ethyl)methylamino)ethanol
6711-48-4	>= 3.0 - < 5.0%	N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine
111-46-6	>= 1.0 - < 3.0%	diethylene glycol

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83016-70-0	>= 1.0 - < 3.0%	2-((2-(2-(dimethyl amino)ethoxy)ethyl)methyl amino)ethanol
9046-10-0	>= 0.3 - < 1.0%	alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

4. First-Aid Measures

Description of first aid measures

General advice:

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:

Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:

Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:

Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:

Do not induce vomiting. Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Information on: diethylene glycol

Symptoms: Overexposure may cause: vomiting, coma, abdominal cramps, lethargy, nausea, diarrhea, headache

Information on: tris(2-chloro-1-methylethyl)phosphate

Symptoms: Overexposure may cause: convulsions, depression, hypoxemia, tremors

Hazards: No hazards anticipated.

Indication of any immediate medical attention and special treatment needed

Note to physician

Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, dry powder, carbon dioxide, foam

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Special hazards arising from the substance or mixture

Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:

Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Further accidental release measures:

High risk of slipping due to leakage/spillage of product.

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing.

Environmental precautions

Do not empty into drains. Do not discharge into the subsoil/soil.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Ensure thorough ventilation of stores and work areas. Protect against moisture.

Protection against fire and explosion:

No special precautions necessary.

Conditions for safe storage, including any incompatibilities

Segregate from foods and animal feeds. Segregate from acids. Segregate from oxidants.

Suitable materials for containers: Carbon steel (Iron), High density polyethylene (HDPE), Low density polyethylene (LDPE), Stainless steel 1.4301 (V2)

Further information on storage conditions: Containers should be stored tightly sealed in a dry place.

Storage stability:

Storage temperature: 16 - 27 °C

Protect against moisture.

The stated storage temperature is noted for health and safety in the workplace. With regard to Quality, please refer to the product specific Technical Bulletin.

8. Exposure Controls/Personal Protection

No occupational exposure limits known.

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Advice on system design:

Provide local exhaust ventilation to control vapours/mists.

Personal protective equipment

Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed.

Hand protection:

Chemical resistant protective gloves

Eye protection:

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists.

Body protection:

Standard work clothes and shoes.

General safety and hygiene measures:

Avoid contact with skin. Handle in accordance with good industrial hygiene and safety practice. Wear protective clothing as necessary to prevent contact. Avoid inhalation of vapours/mists. Wash soiled clothing immediately.

9. Physical and Chemical Properties

Form:	liquid
Odour:	amine-like
Odour threshold:	No applicable information available.
Colour:	yellow
pH value:	9.5
Melting point:	0.00 °C
Boiling point:	100.00 °C
Sublimation point:	No applicable information available.
Flash point:	> 200.00 °F (closed cup)
Flammability:	not flammable
Lower explosion limit:	For liquids not relevant for classification and labelling. The lower explosion point may be 5 - 15 °C below the flash point.
Upper explosion limit:	For liquids not relevant for classification and labelling.
Autoignition:	> 250 °C
Vapour pressure:	< 0.1 hPa (25 °C)
Density:	1.0000 g/cm ³ (20.00 °C)
Relative density:	No applicable information available.
Vapour density:	No applicable information available.
Partitioning coefficient n-octanol/water (log Pow):	Unspecified
Self-ignition temperature:	not self-igniting
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.
Viscosity, dynamic:	350.000 mPa.s (25.00 °C)
Viscosity, kinematic:	No applicable information available.

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Solubility in water:	slightly soluble
Solubility (quantitative):	No applicable information available.
Solubility (qualitative):	No applicable information available.
Evaporation rate:	Value can be approximated from Henry's Law Constant or vapor pressure.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:

No corrosive effect on metal.

Oxidizing properties:

Not an oxidizer.

Chemical stability

The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Temperature: < 0 degrees Celsius

Incompatible materials

acids, oxidizing agents, isocyanates

Hazardous decomposition products

Decomposition products:

Hazardous decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide

Thermal decomposition:

No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Oral

Type of value: ATE

Value: 2,737 mg/kg

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Inhalation

No applicable information available.

Dermal

No applicable information available.

Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Origin of data: expert judgement

Irritation / corrosion

Assessment of irritating effects: Corrosive! Damages skin and eyes. May cause severe damage to the eyes.

Sensitization

Assessment of sensitization: The chemical structure does not suggest a sensitizing effect. No applicable information available.

Aspiration Hazard

No aspiration hazard expected.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated exposure may affect certain organs.

Genetic toxicity

Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Carcinogenicity

Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Reproductive toxicity

Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Teratogenicity

Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. No applicable information available.

Other Information

The product has not been tested. The statement has been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product.

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12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

Acutely harmful for aquatic organisms. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product has not been tested. The statement has been derived from the properties of the hydrolysis products.

Toxicity to fish

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

LC50 (96 h) > 15 mg/l, Oncorhynchus mykiss (OECD Guideline 203, semistatic)

The details of the toxic effect relate to the nominal concentration. Limit concentration test only (LIMIT test).

LC50 (96 h) 772.14 mg/l, Cyprinodon variegatus (OECD Guideline 203, static)

The details of the toxic effect relate to the nominal concentration.

Information on: Brominated aromatic diol

LC50 (96 h) 12 mg/l, Lepomis macrochirus (other)

Information on: 2-Propanol, 1-chloro-, phosphate (3:1)

LC50 (96 h) 51 mg/l, Pimephales promelas (Fish test acute, static)

LC50 (96 h) 56 mg/l, Brachydanio rerio (Fish test acute, static)

Information on: N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine

LC50 (96 h) > 21.5 - < 46.4 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 84/449/EEC, C.1, static)

The statement of the toxic effect relates to the analytically determined concentration. The product will cause changes in the pH value of the test system. The result refers to an unneutralized sample. After neutralization no appreciable reduction in harmful effect can be observed.

Aquatic invertebrates

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

EC50 (48 h) 80 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

The details of the toxic effect relate to the nominal concentration.

EC50 (48 h) 418.34 mg/l, Arcatia tonsa (Daphnia test acute, static)

The details of the toxic effect relate to the nominal concentration.

Information on: 2-Propanol, 1-chloro-, phosphate (3:1)

EC50 (48 h) 131 mg/l, Daphnia magna

Information on: N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine

EC50 (48 h) 24 mg/l, Daphnia magna (OECD Guideline 202, part 1, Flow through.)

The statement of the toxic effect relates to the analytically determined concentration.

Aquatic plants

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

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*EC50 (72 h) 15 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
The details of the toxic effect relate to the nominal concentration.*

*EC10 (72 h) 1.4 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
The details of the toxic effect relate to the nominal concentration.*

*EC50 (72 h) 141.72 mg/l, Skeletonema costatum (ISO/DIS 10253, static)
The details of the toxic effect relate to the nominal concentration.*

*No observed effect concentration (72 h) 100 mg/l, Skeletonema costatum (ISO/DIS 10253, static)
The details of the toxic effect relate to the nominal concentration.*

Information on: N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine

EC50 (72 h) 7.9 mg/l (biomass), algae (OECD Guideline 201, static)

No observed effect concentration (72 h) 1.2 mg/l (biomass), algae (OECD Guideline 201, static)

Lowest observed effect concentration (72 h) 1.7 mg/l (biomass), algae (OECD Guideline 201, static)

Information on: 2-Propanol, 1-chloro-, phosphate (3:1)

*EC50 (72 h) 82 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
Nominal concentration.*

Chronic toxicity to aquatic invertebrates

Information on: N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine

No observed effect concentration (96 h) 3.5 mg/l, Daphnia sp.

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

No data available regarding toxicity to daphnids.

Information on: 2-Propanol, 1-chloro-, phosphate (3:1)

No observed effect concentration (21 d) 32 mg/l, Daphnia magna (OECD Guideline 202, part 2, semistatic)

Nominal concentration.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms

Information on: N'-(3-(dimethylamino)propyl)-N,N-dimethylpropane-1,3-diamine

activated sludge/EC20 (3 h): 170 mg/l

OECD Guideline 209 static

activated sludge/No observed effect concentration (3 h): 1,000 mg/l

OECD Guideline 209 static

activated sludge/EC50 (3 h): > 1,000 mg/l

Information on: alpha-(2-Aminomethylethyl)-omega-(2-aminomethylethoxy)- poly(oxy(methyl-1,2-ethanediyl))

OECD Guideline 209 aerobic

activated sludge of a predominantly domestic sewage/EC20 (3 h): 380 mg/l

The details of the toxic effect relate to the nominal concentration.

Information on: 2-Propanol, 1-chloro-, phosphate (3:1)

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Poorly biodegradable.

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Elimination information

Poorly biodegradable.

Bioaccumulative potential

Assessment bioaccumulation potential

Does not significantly accumulate in organisms.

Mobility in soil

Assessment transport between environmental compartments

Adsorption to solid soil phase is not expected.

Additional information

Adsorbable organically-bound halogen (AOX):
This product contains no organically-bound halogen.

Other ecotoxicological advice:
The product has not been tested. Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:

Incinerate in a licensed facility. Dispose of in a licensed facility. Do not discharge substance/product into sewer system.

Container disposal:

Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer or an approved landfill. Do not attempt to refill or clean containers since residue is difficult to remove. Under no circumstances should empty drums be burned or cut open with gas or electric torch as toxic decomposition products may be liberated. Do not reuse empty containers.

14. Transport Information

Land transport

USDOT

Hazard class:	8
Packing group:	III
ID number:	UN 1760
Hazard label:	8
Proper shipping name:	CORROSIVE LIQUID, N.O.S. (contains N-[3-(DIMETHYLAMINO)PROPYL]-N,N-DIMETHYLPROPANE-1,3-DIAMINE)

Sea transport

IMDG

Hazard class:	8
Packing group:	III
ID number:	UN 1760
Hazard label:	8
Marine pollutant:	NO
Proper shipping name:	CORROSIVE LIQUID, N.O.S. (contains N-[3-

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(DIMETHYLAMINO)PROPYL]-N,N-DIMETHYLPROPANE-1,3-DIAMINE)

Air transport

IATA/ICAO

Hazard class: 8
Packing group: III
ID number: UN 1760
Hazard label: 8
Proper shipping name: CORROSIVE LIQUID, N.O.S. (contains N-[3-(DIMETHYLAMINO)PROPYL]-N,N-DIMETHYLPROPANE-1,3-DIAMINE)

15. Regulatory Information

Federal Regulations

Registration status:

Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

State regulations

State RTK

PA

CAS Number

111-46-6

Chemical name

diethylene glycol

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

WARNING: This product can expose you to chemicals including PROPYLENE OXIDE, which is known to the State of California to cause cancer, and TOLUENE, which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

[Other Prop 65 components may be present in the product.]

NFPA Hazard codes:

Health: 3 Fire: 1 Reactivity: 1 Special:

HMIS III rating

Health: 3⁺ Flammability: 1 Physical hazard: 1

16. Other Information

SDS Prepared by:

BASF NA Product Regulations
SDS Prepared on: 2017/10/12

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in

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a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

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END OF DATA SHEET

Open-Cell Low Density Spray Polyurethane Foam Insulation Application Guidelines ENERTITE® Series (G)

ENERTITE Series products are open-cell, low density spray polyurethane foam (ocSPF) insulation materials. These ocSPF are created by the chemical reaction between an isocyanate and a resin. ENERTITE Series can only be processed with BASF ELASTOSPRAY® 8000A Isocyanate. When these materials are combined in the spray gun's mixing chamber, a chemical reaction occurs, generating heat. This heat, or exothermic reaction, causes the chemicals to expand creating foam. The final cured ENERTITE product is yellow/off white. ENERTITE Series is a water-blown formulation.

ENERTITE (ET) Series comes in one reactivity grade, and these ocSPF Application Guidelines refer to open cell spray foam.

TO BE INSTALLED ONLY BY PROPERLY TRAINED CONTRACTORS

Installation of BASF spray foams requires special equipment and training. Only individuals that have completed training through verifiable sources (i.e. ABAA, Approved Distributor training, BASF TTC Training, CPI Online Health & Safety Training, SPFA Professional Certification Program [PCP] Training) can install ENERTITE Series SPF.

These Application Guidelines are for general reference only. Qualified individuals must be familiar with one or more of these industry guidelines: Spray Foam Coalition Guidance on Best Practices For the Installation of SPF, SPFA PCP Manuals or ASTM Standard C1848. For any questions regarding how to properly apply ENERTITE Series, please refer to the Technical Data Sheet and Code Compliance Research Report 1032 or Evaluation Service Report 3102. To speak to BASF regarding further open-cell foam application and processing guidelines, call 1-800-706-0712 Option 2 (CST) or email spf.techsales@basf.com

SHELF LIFE AND STORAGE CONDITIONS:

Note that ENERTITE resin has a shelf life of approximately six (6) months and ELASTOSPRAY 8000A Isocyanate has a twelve (12) month shelf life from the date of manufacture when stored in original, unopened containers at 50-80°F. As with all industrial chemicals, this material should be stored in a covered, secure location and never in direct sunlight. Storage temperatures below the recommended range will shorten shelf life. Using product out of shelf life will produce a non-credentialed product.

PROPER APPLICATION

Weather and Environmental Conditions

Before beginning an application, ensure the surrounding environment meets the following conditions:

Wind	When applying outdoors, wind speed must not be higher than 10 mph unless windscreens are used.
Humidity & Dew Point	No spraying should be done when the ambient temperature is within 5 degrees of the dew point. When the relative humidity is above 80% spray foam applications must be monitored and inspected frequently for adequate adhesion. High RH could cause blistering problems and weaken foam adhesion.
Ambient Temperature	ENERTITE G has an AMBIENT temp. range: 20°F to 120°F (-6.7°C to 48.9°C)

Substrate Service Temperature

Before beginning an application, ensure the continuous substrate temperature onto which ENERTITE Series is to be applied remains within the following range at all times:

Normal substrates (i.e. wood, wood-based products)	Heat sink materials (i.e. concrete, metal)
20°F* to 120°F (-6.7°C to 48.9°C)	30°F* to 120°F (-1.1°C to 48.9°C)

ENERTITE® SERIES OCSPF APPLICATION GUIDELINES

Substrate Preparation

Prior to beginning application, determine if the substrate can be used with ENERTITE Series by conducting an adhesion test in accordance with ABAA, approved distributor training, BASF TTC Training, CPI Online Health & Safety Training, SPFA PCP Training, and/or ASTM C1848 Standard.

All substrates to be sprayed must be free of frost, dew, moisture, dust, oil, wax, mold release, grease, oxidization (rust), loose particles, and any other element that may inhibit proper adhesion of the SPF to the substrate.

Metal surfaces (i.e. ferrous or galvanized metals) may require the application of a primer or may require specialized treatments i.e. wire brush, chemical treatment, or commercial sand blasting prior to priming. Other surfaces may require additional preparation – pay special attention to substrates with high moisture content (concrete less than 28 days cured, and wood with moisture content over 18%, etc.). See training material for further information.

Pass Thickness and Multiple Passes

The heat created by the exothermic reaction during application creates a risk of scorching and/or fire, as well as irritating odors. This risk increases with greater pass thickness.

All ENERTITE Series must be applied to a minimum of ½" (15mm) pass thickness and to a 6" (180 mm) **maximum** thickness in one pass or lift. Pay close attention to areas where thick pockets of foam may develop during application, such as rim joists, header spaces, exterior wall corners, small stud spaces, and wall intersections, to ensure that no section of a pass exceeds the maximum thickness in a pass/lift.

If you spray a pass in excess of the maximum pass thickness, those areas must be immediately removed from the substrate using a non-flammable tool such as a crowbar – do not use your hands. After removal, break up large pieces of foam on a non-flammable surface using the non-flammable tool. Large masses of SPF should be removed to an outside safe area, cut into smaller pieces and allowed to cool before discarding into an appropriate trash receptacle.

When spraying multiple passes, a cooling/dwell time of 5 minutes per pass applied **must** be allowed for the dissipation of heat. Not allowing adequate cooling/dwell time raises the risk of scorching and/or fire. Once the installed material has cooled, it is possible to add additional passes in order to increase the overall installed thickness of SPF. Maximum four passes, at the maximum allowable pass thickness, per 12 hrs. Odor level of spray polyurethane foam is dependent on proper application using the recommended processing parameters and proper ventilation during the application.

The table below is designed to indicate the minimum and maximum application rate as well as the optimal coverage for each closed cell system. Applications less than the optimal pass range could lead to increased density and reduced yield.

	ENERTITE G water blown open cell SPF
Minimum pass thickness	½"
Maximum lift thickness per pass	6"
Optimal thickness range	4" – 6"

Impact of Exotherm on Construction Materials

In addition to temperature control within the foam itself, care must be given to applications over materials that the foam contacts, and/or encapsulates. Maximum service temperature of ocSPF is 180°F. Common construction materials such as wiring (both NM (non-metallic) electrical wiring and low-voltage wiring (security, electronic, etc.), as well as plastic pipes, including but not limited to PEX, PVC, cPVC and ABS, typically have maximum exposure temperature of 140°F-220°F. If spraying on a heat sensitive product, adequate heat mitigation techniques include the use of a flash coat, applying ocSPF so that the product does not end up in the point of hottest exotherm, and shielding the material from encapsulation.

PROCESSING AND APPLICATION INSTRUCTIONS

The following equipment settings are recommended:

- Hose heat and primary heater temperature of 125°F-135°F in colder climates and 105°F-125°F in warmer climates
- Proportioner set (static) pressure of 1150-1450 psi for a dispensing (dynamic) pressure 900 – 1200 psi in all climates.
- Start with a hose and primary heater heat setting of 120°F and a dispensing (dynamic) pressure of 1000 psi. Make adjustments to those settings in small increments (+/- 5°F, +/- 100 psi).
- The optimum temperature may vary with the type of equipment used, the particular application conditions, and the climate zone. For more information on equipment consult the Spray Polyurethane Foam Alliance (SPFA) technical document AY-137.
- BASF's SPF systems are formulated to produce foam with physical properties representative of our published data sheets within the factory set tolerances of commercially available fixed ratio proportioner units.

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ENERTITE® SERIES OCS PF APPLICATION GUIDELINES

PROCESSING AND APPLICATION INSTRUCTIONS (continued)

- A small “test area” of spray foam should be applied and inspected prior to commencing the project.
 - Check the reactivity, density, spray pattern, mix quality, and foam cell quality by test spraying onto a disposable piece of substrate.
 - This simple, low-cost test area can indicate inadequate adhesion, improper surface preparation and/or primer requirements, surface contamination, improper substrate and/or ambient temperature, equipment malfunctions, material contamination, or improper application technique.
 - Visual inspection of a sample cut from first test area and periodic job samples can reveal potential problems that may be due to one or more of the above conditions.
- Hold the spray gun perpendicular 18-24 inches from the substrate if spraying a cavity and 18-36 inches from the substrate if spraying an open wall or underside of a roof. Arm movement, extension and stretching should be minimized while spraying.
- The thickness of a pass depends on the speed of the arm movement while spraying and the overlap of the spray pattern. Smooth, steady movements ensure proper application and uniform density.

PROPER VENTILATION

Application space must be properly ventilated during and after application of ENERTITE Series. Consult the EPA’s “Ventilation Guidance for Spray Polyurethane Foam Application” document, the American Chemistry Council’s “Ventilation Considerations for Spray Polyurethane Foam” documents for specific requirements, and the BASF Technical Tip #20 Jobsite Ventilation Re-occupancy & Re-entry time for Open & Closed cell Spray Polyurethane Foam. A 24-hour re-occupancy time with proper ventilation rates is advised.

In the American Chemistry Council – Center for the Polyurethanes Industry website you will find two open cell studies conducted by BASF, “Spray Polyurethane Foam Monitoring and Re-Occupancy of High-Pressure Open Cell Applications to New Residential Constructions” and “Open Cell Monitoring, a Follow-up After Reformulation.” It is within these studies that the suggested values of the table below were extrapolated.

BASF Product	Reentry @ 20 ACH*	Reentry with minimal ventilation	Reoccupancy
ENERTITE G	2 hours	4 hours	24 hours

*Ventilation rates based upon ventilation used DURING the time of application and for the time frame listed.

Properly designed work zone containment including, but not limited, to controlled negative pressure, contained air flow/movements, appropriate air supply /exhaust system together prevent contaminants from moving into adjacent spaces and provide a way to eliminate lingering odors and contaminants. Provide proper ventilation and isolation of the spray area in order to ensure no entry or exposure by other trades or occupants, during the spray period and after completion while the materials cure. Consult appropriate design professionals.

PROCESSING AND APPLICATION INSTRUCTIONS IN COLDER CONDITIONS

ENERTITE Series, with special attention to the substrate and ambient temperature guidelines as well as the following important additional instructions.

- Start by not allowing product to freeze as B side material can separate and A side can form crystals. Ensure drums are stored between 50-80°F (10-26.7° C), never in direct sunlight. This may require keeping drums off floor and conditioning the storage area.
- Material should be brought as close to 70°F before beginning processing to ensure proper heating of both components. If warming of material is required, it may take hours or days to heat up from low temperatures. Material colder than 50°F may be difficult to pump.
- Store material between 70-80°F in a warm room or with heat blankets prior to use.
- Preheat spray area and substrate in advance. Properly address “heat sink” materials such as concrete or metal. Stay away from heaters that produce moisture/condensation (i.e. propane, kerosene). Inspect substrate for visible moisture (i.e. condensation, frost, ice or snow). Frequently re-inspect during the spraying process.
- Picture framing technique in studs in addition to “flash pass coating” help prevent curling and shrinkage.
- Spraying terminations and allowing proper cooling before tying in the remainder of the foam will help reduce strain from curing.
- If possible, maintain ambient temperature of spray area to allow for the complete curing of end product.
- Friability (powdery surface on SPF during cold weather conditions) results from lack of heat during the foaming reaction which extends the timeline for both curing and polymerization of the plastic foam. During this time the foam is in a fragile state but will firm up with time. Thermal Shock (when the exotherm of the spray foam is subject to rapid cool down because it is applied to a cold target or exposed to cold air after application) may lead to disbondment before the foam fully cures to obtain all of its physical properties, including a firm bond to the target.
- Quality control – small scale test areas provide an opportunity to see how all materials are installed and evaluate their properties prior to proceeding. Stop and correct any issues before continuing.

For detailed spray instructions, refer to Training materials.

IT IS STRONGLY ENCOURAGED TO COMPLETE A QUALITY CONTROL DAILY REPORT AND AN INSULATION CARD FOR EACH PROJECT

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ENERTITE® SERIES OCSPF APPLICATION GUIDELINES

DIRECTIONS FOR FLUSHING MATERIALS

- Going from the ENERTITE Series to any BASF closed-cell material or vice versa only requires a few special steps. One material can be pushed through the lines with the other. The material can be either **bled out** or **sprayed out**.
- Every 50 ft of 3/8" hose contains approximately ½ gallon of material (¼ gallon resin and ¼ gallon isocyanate). For 300 ft of hose, approximately 4 gallons of material needs to be purged from the lines to get to fresh material.
- If material is **bled out**, please note that where one is pushing out, there will be some cross contamination of the two resins. The bled material can be re-used as long as cross contamination has not occurred. Please note that the same Isocyanate (A- side) material is used for both BASF closed and open cell SPF and therefore, the resin (B-side) is the only side that is required to be bled out.
- If material is **sprayed out**, purge the cross-over material out onto polyethylene plastic or cardboard until you get to the material you are intending on spraying. Once you have all the first material out of the system, you will need to do a quality check prior to spraying the foam into cavities.
- **CROSSOVER MATERIAL SPRAYED IN THE WALL CAVITY SHOULD BE REMOVED IMMEDIATELY BEFORE CONTINUING.** Dangerous exotherm could occur if the crossover material is sprayed too thick (> 2 inches in a single pass).
- If transitioning from ENERTITE Series to another manufacturer's closed-cell resin, flushing is required. Follow any flushing or processing guidelines required by that manufacturer.

EXPOSED FOAM

Sunlight adversely affects urethane foams. For this reason, it is recommended that a UV protective coating be applied over the finished foam if it is to be exposed longer than 90 days. This would help protect against the deteriorating effects of ultraviolet radiation and atmospheric moisture. In addition, spray foam is combustible and is required by building codes and the insurance industry to be covered for fire protection. Nearly all applications of spray foam inside a home or building is required to be protected by either a thermal barrier or ignition barrier, those approved for application over BASF SPF's can be found on the open cell Evaluation Reports [ESR 3102 / CCRR 1032](#). For more information regarding these requirements you can consult with BASF Technical Advisors, SPFA Technical Document AY-126 or www.spraypolyurethane.org.

DISPOSAL

Disposal of containers or unused chemical must be done in compliance with all applicable Federal, State, County or Municipal guidelines. Do not burn materials in drums containing residue. Empty containers that have been properly prepared should be recycled by contacting RIPA – The Reusable Industrial Packaging Association at www.reusablepackaging.org for the nearest drum reconditioner near you.

TECHNICAL ASSISTANCE

For more detailed information, contact Inside Technical Sales at Toll-Free: 1-800-706-0712, Option 2 (CST)

Email: spf.techsales@basf.com

Website: www.spf.basf.com

Technical data sheets: <http://www.spf.basf.com/TDS-SDS-INFO.php>

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Warning: These products can be used to prepare a variety of polyurethane products. Polyurethanes are organic materials and must be considered combustible.

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