UPC 500 OCX

TECHNICAL DATA SHEET & SPRAY GUIDELINES

APPENDIX X OPEN-CELL SPRAY FOAM

UPC 500 OCX OPEN-CELL FOAM

UPC 500 OCX is a two component, water blown (zero ozone depleting chemical) light density, open-cell spray polyurethane foam insulation that is designed to improve the performance of the building envelope for commercial, residential and industrial applications.

Viscosity (Brookfield cps) @ 77°F	A Side: 200 ± 30	B Side: 650 ± 200
Core Density	ASTM D1622	0.5 pcf ± 0.05
Tensile Strength	ASTM D1623	3.91 psi
R-Value @ 1"	ASTM C518	3.9
Water Vapor Permeance @ 1.5"	ASTM E96	8.4 Perms
Air Permeance @ 3.5"	ASTM E2178 @ 75 PA	0.00152
Dimensional Stability	ASTM D2126	< 0.03%
Flammability	ASTM E84 @ 4"	15 Flame Spread | 200 Smoke Development

Large Scale Fire Testing: UPC 500 OCX has been tested and approved in accordance to AC 377 (NFPA® 286) Appendix "X" with NO additional coating. UPC 500 OCX has been tested and approved in accordance to NFPA® 286 with 20 wet mils – 13 dry mils of DC 315® thermal barrier from International Fireproof Technology, Inc.

SPRAY PARAMETERS

This chart is a **starting guide** to set temperatures and static pressures based on environment, mixing chamber size, and equipment. Adjustments should be made to account for substrate temp/type, hose insulation condition, speed of sprayer, wind factor, etc. A smaller mixing chamber, like Graco Fusion 01, will give you the best quality foam at optimal speed-to-yield ratio.

Select Mixing Chamber:		4242 | -01			5252 | -02			6060 | -03	
Select Ambient Temp and Match to Mix Chamber		Temperature Set			Temperature Set			Temperature Set	
		Hose†	**A**	**B**	**Hose†**	**A**	**B**	**Hose†**	**A**	**B**
Substrate Temperature for standard wood	**> 90°F**	*139°F*	*142°F*	*145°F*	*140°F*	*143°F*	*146°F*	*141°F*	*144°F*	*147°F*
	80°F	*141°F*	*144°F*	*147°F*	*142°F*	*145°F*	*148°F*	*143°F*	*146°F*	*149°F*
	70°F	*143°F*	*146°F*	*149°F*	*144°F*	*147°F*	*150°F*	*145°F*	*148°F*	*151°F*
	60°F	*145°F*	*148°F*	*151°F*	*146°F*	*149°F*	*152°F*	*147°F*	*150°F*	*153°F*
	50°F	*147°F*	*150°F*	*153°F*	*148°F*	*151°F*	*154°F*	*149°F*	*152°F*	*155°F*
	40°F	*149°F*	*152°F*	*155°F*	*150°F*	*153°F*	*156°F*	*Not Recommended*		
		CAUTION: Below 40°F a 1/4"-1/2" initial flashing layer may be applied to substrate to eliminate voids in cold weather.								
	30°F	*151°F*	*154°F*	*157°F*	*Not Recommended*			*Not Recommended*		
	20°F	*153°F*	*156°F*	*159°F*						
	15°F	*154°F*	*157°F*	*160°F*						
	10°F	*155°F*	*158°F*	*161°F*						
	< 0°F	*Not Recommended*								
E30 | H30 | G2 | PH-2		1200 +/- psi			1200 +/- psi			1300 +/- psi	
H40 | H50 | PH-40/55		1200 +/- psi			1200 +/- psi			1200 +/- psi	
E20		1200 +/- psi			1400 +/- psi			N/A	

*Important notice regarding yield and density. Many factors affect yield, including substrate temperature, substrate type, and pass thickness. Multiple passes will significantly reduce yield. Larger mixing chamber sizes and higher pressure settings will also reduce yield.

ADDITIONAL INSTRUCTIONS

Agitation
Must agitate at high speed for 30 mins prior to spraying (until turns light yellow). Agitate on medium during application. Recommended agitators are Graco Low Viscosity Agitator #24C728 or Graco High Viscosity Agitator #26C150.

Starting Temperatures & Recirculation
Recirculate as needed to achieve chemical temperatures in the drums of 85°F-100°F for both the A & B-drums. When recirculating, set the primary heater for the A-Side to 85°F and the B-Side to 140°F. Use a laser thermometer to measure drum temperature towards bottom (the A-Drum should NEVER be warmer than the B-Drum).

Substrate Condition
Substrate must be clean and dry and substrate moisture must not exceed 18%. When heating up a house with portable heaters, only heat up to 50°F, otherwise condensation may form on plywood. If metal substrate, only heat up to 45°F. Never use a portable propane powered heater.

Spray Technique
Spray side-to-side. For a 24" on-center cavity spray 18" from surface. For a 16" on-center cavity spray 16" from surface.

Winter Conditions
When the indoor air temperature is below 45°F, care should be taken to heat building up to, but no more than 50°F.

Humidity
When humidity levels exceed 50% and temperatures are below 85°F, reduce the A-Side temperature by 5°F +/-.

Contamination
The B-Side is sensitive to contamination from other products. Never recirculate another product into the UPC 500 OCX. Never combine different products. Make sure transfer pump is properly cleaned between different products before putting into B-Drum. Shrinking foam that pulls away from the studs (that doesn't deflate much) is an indication that it may be contaminated. Large open cells is another indication of possible contamination.

Max|Min Pass Thickness
Max practical pass thickness is 3.5-6" before resulting in splash-back. Min recommended pass thickness is 1".

Proper Temp. Sets
As a general rule of thumb, the hose temperature is the most important and should be set first. The A-side is set 2-5°F higher than the hose. The B-Side is set 3-10°F higher than A-Side depending on humidity levels.

ADDITIONAL INSTRUCTIONS (continued)

†Heated Hose	The hose sensor is one of the most important assessment indicators. The hose temperature should always be set first to the desired final chemical temperature at gun. The hose temperature should rarely be adjusted. The primary heaters should be increased if chemical is too cold. A poorly insulated hose may compromise adequate heating and drastically change required temperature settings. *Not Recommended to set hose above 155°F, as it may burn.*
Pressure Settings	Higher pressure settings create more mist and require greater distance from the cavity resulting in more overspray. Higher pressure will generally lower yield. As a rule-of-thumb, you should practice spraying as close to 1000psi dynamic.

TROUBLESHOOTING GUIDE

Delamination	If the foam does not adhere to itself, then allow the first layer to cool off before applying the next pass.
Pulls Away From Studs	Lower the primary heater and hose temperatures by 3°F. Spray out chemical in hose (approx 2.5 gallons or 1,000 board feet) until new reduced temperature is achieved. If problem does not resolve, lower temperature by another 3°F, and continue to repeat process until problem is resolved.
Voids Behind Foam	The foam may be too cold. Increase all heaters by 5°F. Spray out chemical in hose (approx 2.5 gallons) until new increased temperature is achieved. Repeat process until problem is resolved.
Deflates	Lower the primary heater and hose temperatures by 3°F. Spray out chemical in hose (approx 2.5 gallons or 1,000 board feet) until new reduced temperature is achieved. If problem does not resolve, lower temperature by another 3°F, and continue to repeat process until problem is resolved.
Cells Very Large	Lower temperature on A-side primary heater by 3 to 5°F. Chemical may not be thoroughly agitated, try agitating further. If problem persists then contamination may be present.
Color	If the foam appears yellowish, then it is too cold, primary heaters should be increased 3 to 5°F. Should appear "white."
Poor Yield	B-Side may not be thoroughly mixed, may need agitating longer. Make sure a collapsing blade agitator is being used.
Important	Regardless of proportioner heating capacity, a minimum starting drum temperature of 85°F is necessary to bring viscosities of A&B in alignment to prevent off-ratio foam and increase yield; spraying from cold drum chemical may scorch B-side polyols with primary heaters that are too powerful. B-side chemical should change from clear to "creamy" color when properly mixed and recirculated.

Cautions and Recommendations:

UPC OCX is designed for an application rate of 1 inch minimum to 6 inches maximum per pass. Once installed material has cooled, it is possible to add additional layers to achieve the required installed thickness. UPC 500 OCX is not designed for use as an exterior roofing system.

UPC 500 OCX is designed for installation in most standard construction configurations using common materials such as, concrete, metal, wood and wood products. Foam plastic 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-approved materials in attics and crawl spaces, except where Appendix X approved conditions are permitted.

As with all SPF systems, improper application techniques should be avoided and any defective product replaced with properly installed materials. Examples of improper application techniques include but are not limited to, excessive application thickness, off-ratio material and spraying into or under rising liquid foam. Potential hazards of excessive application thickness are dangerously high cure temperatures that may result in fire. Any large masses of SPF should be removed to an outside safe area, cut into smaller pieces and allowed to cool before discarding into trash receptacle. Additionally, off-ratio materials can result in offensive odors that may not dissipate. SPF insulation is combustible and must be kept away from high-intensity heat sources, such as welding, or cutting torches.

Job-site Warnings:

Applicators should ensure the safety of the job-site and construction personnel by posting appropriate signs warning that all "hot work" such as welding, soldering, and cutting with torches should not take place until a thermal barrier or approved equivalent is installed over any exposed polyurethane foam.
Contractors should communicate with other trades working in proximity to the spray application area. Appropriate warning signs at each entryway must be posted that clearly indicates that spray foam activity is taking place and proper respiratory protection is required to enter. Non SPF personnel and occupants should be vacated from the building during the application of SPF. Proper Ventilation during spraying and afterwards at minimum 10 Air changes per hour. Re-Entry: 2 hour ventilation period before personal protective equipment is no longer required for trades and inspectors. Re-Occupancy: after 24 hours.

Health and Safety Information:

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling or processing UPC 500 OCX spray foam system. Before working with this product, you must read and become familiar with available information (e.g., Safety Data Sheet (SDS)) on its risks, proper use and safe handling. All contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing spray foam systems.

Refer to Spray Polyurethane Foam Alliance (SPFA®) :AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings. www.spraypolyurethanefoam.com

Refer to the Center for the Polyurethanes Industries (CPI): Model Respiratory Protection Program. www.spraypolyurethane.org

Shelf Life and Storage:

UPC 500 OCX has a shelf life of approximately six months from the date of manufacture when stored in original, unopened containers at 50-80°F. This material should be stored in a secure location and never in direct sunlight. Storage temperatures above the recommended range will shorten shelf life.

Vapor Retarder:

UPC 500 OCX is intended for indoor applications, and is not a vapor retarder. It is vapor permeable and will allow for some diffusion of moisture through the insulation. The following considerations are needed:

(1) A vapor retarder needs to be considered in the design of the building envelope in cold climates, such as zones 4 and higher in the U.S., as defined in 2004 Supplement to the IRC®, Table N 1101.2;
(2) A vapor retarder also needs to be considered where high interior humidity conditions exist.