

PRODUCT DATA



ecostar™ CC

ECOSTAR™ CC is a two-component, medium density, one-to-one by volume spray applied polyurethane foam system. ECOSTAR™ CC system consists of an “A” component (ISO) and a blended “B” component (RESIN) in separate drums. ECOSTAR™ CC system is HFC-245fa based and contains ZERO ozone depleting agents or other compounds.

Viscosity (Brookfield cps) @ 77°F	A Side: 200 ± 30	B Side: 650 ± 50
Core Density	ASTM D-1622	2.0 pcf
Tensile Strength	ASTM D-1623	35 psi
R-Value @ 1"	ASTM C-518	6.6
Water Vapor Transmission	ASTM C-355	0.98 Perm @ 1.5 inch
Closed Cell Content	ASTM D-1940	93%
Dimensional Stability	ASTM D-2126	-20°F: N/C 158°F @100%RH: <7%
Flammability (Class 1)	ASTM E-84	25 Flame Spread 450 Smoke Development

Large Scale Fire Testing: ECOSTAR™ CC is tested and approved in accordance to AC 377 (NFPA® 286) Appendix “X” with 4 wet mils, 4 dry mils of DC 315® ignition barrier. ECOSTAR™ CC has been tested and approved in accordance to NFPA® 286 with 18 wet mils of DC 315® thermal barrier.

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	119°F	122°F	125°F	120°F	123°F	126°F	121°F	124°F	127°F
	80°F	121°F	124°F	127°F	122°F	125°F	128°F	123°F	126°F	129°F
	70°F	123°F	126°F	129°F	124°F	127°F	130°F	125°F	128°F	131°F
	60°F	125°F	128°F	131°F	126°F	129°F	132°F	127°F	130°F	133°F
	50°F	127°F	130°F	133°F	128°F	131°F	134°F	129°F	132°F	135°F
	40°F	129°F	132°F	135°F	130°F	133°F	136°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	130°F	133°F	136°F	Not Recommended			Not Recommended		
	20°F	132°F	135°F	138°F						
	15°F	133°F	136°F	139°F						
	10°F	134°F	137°F	140°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	DO NOT agitate.
Starting Temperatures & Recirculation	DO NOT RECIRCULATE. Starting chemical temperatures in the drums should be between 55°F–75°F for both the A & B-drums. Use a laser thermometer to measure drum temperature towards bottom (A-Drum should NEVER be warmer than B-Drum). If drum is below 55°F, then slowly raise temperature with warming blanket or in overnight heated storage. NEVER super-heat with torpedo heater or the like. If chemical is too thick then you may recirculate with NO primary heaters to thin-out. If drum is too hot then blowing agent will boil-off.
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.
Metal / Concrete Application	When applying on metal or concrete you may need a priming flash coat. Increase temperatures by 2–5°F to account for heat loss from these surfaces.
Winter Conditions	When indoor air temperature is below 45°F, care should be taken to heat the 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 combine different products. Make sure transfer pump is cleaned between different products before putting into B-Drum. If the foam over-expands then deflates or the cells are very large this is an indication of possible contamination.
Max / Min Pass Thickness	Max pass thickness is 2". Too thick will overheat foam, cause burnt odor, result in future shrinkage, or possibly lead to fire hazard.
Proper Temp. Sets	As a general rule of thumb: The hose temperature should always be 2–5°F lower than the A-Side temp, and the A-Side 2–5°F lower than the B-Side temp.
†Heated Hose	The hose temperature should always be set first to the desired final chemical temperature at gun and should rarely be adjusted. The primary heaters should be increased if chemical is too cold. A poorly insulated hose may compromise heating and drastically change required temperature settings.
Spray Technique	Spray side-to-side for better yield. Layering will reduce yield, make smoother. For a 16" on-center cavity spray 16" from surface, 18" for 24" on-center.
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 1,000 psi 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) until reduced temperature is achieved. If problem does not resolve, lower temperature by another 3°F, and continue to repeat process until resolved. Chemical may be contaminated.
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 / Cells Too Large	Contamination from open-cell may be present. Improper switch over from open-cell.
Chalky / Brittle	Too hot. Lower the primary heater and hose temperatures by 3°F. If problem does not resolve, lower temperature by another 3°F, and repeat.
Curing Too Fast	If the closed-cell is curing too fast then it is too hot and could result in future cracking. Lower temperatures by 3°F or as needed.
Color	If the foam appears yellowish, then it is too cold, primary heaters should be increased 3 to 5°F. Foam should appear "white."
IMPORTANT	Minimum drum temperature of 55°F is necessary to bring viscosities of A&B in alignment to prevent off-ratio foam and increase yield; setting chemical temperatures above recommendations may result in B side frothing or loss of foam yield.

CAUTIONS AND RECOMMENDATIONS:

ECOSTAR® CC is designed for an application rate of 1 inch minimum to 2 inches maximum per pass. Once installed material has cooled, it is possible to add additional layers to achieve the required installed thickness. ECOSTAR® CC is not designed for use as on exterior roofing system.

ECOSTAR® CC 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.

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 ECOSTAR® CC 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.spraypolyurethane foam.com

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

SHELF LIFE AND STORAGE:

ECOSTAR® CC has a shelf life of approximately six (6) 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:

ECOSTAR® CC 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. Refer to local codes and manufacturer's written specifications to ensure compliance.

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