# POLYCON OPEN CELL
## SPRAY FOAM INSULATION
# APPLICATION GUIDELINE

## Product Design

PolyCon 450 and PolyCon 500 are Class A (Class I) rated spray foam systems that provide applicators with high yield, low density cost savings along with reliable and consistent performance with a broad temperature application tolerance.

## Product Use

PolyCon 450 and PolyCon 500 form an air barrier in wall cavities and can be used to fill a variety of wall cavity stud thicknesses in a single pass application. PC 450 and PC 500 adhere tenaciously to most building materials and will provide a seamless barrier against air infiltration for the life of the building.

The monolithic blanket is formed when the PolyCon PC 450 or PC 500 spray foam is applied as a liquid, then quickly expanding into a seamless, fully adhered blanket of insulation that fills every crack and crevice to ensure that all risk of air infiltration is eliminated. Air infiltration can be the main source of energy loss, as much as 45%, in a typical structure.

## Recommended Product Applications

- Interior Walls
- Attic Floor
- Between Floors
- Vaulted Ceilings
- Cathedral Ceilings
- Sealed Crawl Spaces
- Basement Walls
- Under Roof Deck

## Recommended Processing Guidelines

| | |
|---|---|
| Mix Chamber | minimum of 01 |
| Transfer Pumps | 2:1 , 3:1 |
| Ambient / Substrate Temperature | 40 - 120°F / 4 - 49°C |
| Equipment Dynamic Pressure | 1,000 - 1,500 psi |
| Preheat Temperature | 115 - 135°F / 46 - 57°C |
| Drum Temperature | 65 - 85°F / 18 - 29°C |
| Wood Substrate Maximum Moisture | 17% |
| Storage Temperature (No sun exposure) | 65 - 85°F / 18 - 29°C |

## Material Shelf Life

Six (6) months when stored properly

## Storage Requirements

Store ISO and resin material in a covered warehouse out of direct sun exposure. Ambient temperature should be relatively consistent but not fluctuate outside of 50 – 90°F.

## Thermal Barrier

IBC code requires that spray foam be separated from the interior of the building by an approved fifteen (15) minute thermal barrier, such as ½" gypsum wall board or equivalent, installed per manufacturers specifications, meeting local code requirements, or other protective layers tested as a composite configuration and system, that have passed third party audited testing by an approved laboratory.

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## Application Guidelines

PC 450 and PC 500 may be applied in residential, commercial or agricultural building applications. PC and PC 500 can be applied to vertical and horizontal applications including walls, attics, floors and multiple ceiling configurations such as vaulted and cathedral ceilings. PC 450 and PC 500 will adhere tenaciously to most construction materials such as clean wood, metal, masonry and concrete substrates.

## Startup Procedure

Ensure that drum temperatures are within recommended processing temperatures of 65 – 85°F throughout before charging equipment with new material. Recirculating material can help further warm material and avoid temperature inconsistencies such as a cold core. PC 450 and PC 500 are non-mix formulations and do not require premixing, but recirculation is encouraged for consistency. It is imperative that the PC 450 and PC 500 are not cross contaminated throughout this process with any other products other than drums of the same formulation.

## Flushing Procedure

It is imperative that prior to the introduction of the PC 450 and PC 500 to any equipment, the equipment must be purged thoroughly of any previous material to avoid cross contamination. Turn off and disconnect air to all transfer pumps. Remove the drum pumps from the ISO and Resin drums and wipe pumps and dip tubes clean. Ensure resin drum pump housing is empty. Place the drum pumps and dip tubes in PolyCon ISO and PC 450 or PC 500 resin drums. Reconnect and turn on the air to the drum pumps. Use the drum pumps to purge the ISO and resin supply and recirculate hoses back into their respective drums. Purging material usually generates one to two gallons of liquid, depending on hose length. When completed, and before changing into another system, flush the resin side with 3-4 gallons of water.

## Application Characteristics

On ratio finished product will result in uniformed cell structure and color throughout the installed system. For best results, apply the PC 450 or PC 500 in three (3) inches for the first pass. Each pass thereafter can be sprayed up to six inches. Target surfaces for the PC 450 or 500 should have a moisture content of 18% or less. While spraying PC 450 or 500, if the application appears to run or drip, increase the hose and preheat temperatures in three (3) degree increments until the condition is eliminated. Be sure to allow the increased heated material to reach the application gun before additional changes are made. Spray technique may also assist by starting the application from the bottom up allowing the warm air to rise across the substrate target. The hose heat and preheat temperatures should never exceed 145°F for both Iso and resin. When applying multiple lifts, wait at least fifteen (15) minutes between passes, especially in cool or cold weather, to allow any remaining surface moisture to evaporate. If subsequent passes display compromised adhesion, a longer wait time between passes may be required as a result of dew point and humidity.

*PC 450 or PC 500 should never be applied over eight (8) inches per pass and should always be allowed to cool between passes to ensure the product does not overheat, cause excess heat buildup and result in a fire or cause components of the formulation to generate unintended odors that may not dissipate over time.*

## Troubleshooting Shrinkage or Poor Pass Adhesion

Off ratio mix of ISO and resin?

- Check pressure gauges over 200 psi variance could be an indication of a material restriction.

Target substrate moisture content is too high?

- Surface moisture can occur as a result in ambient temperature fluctuations and an increased dew point.

Material temperature is too high causing a change to the intended reaction profile?

- If this occurs, reduce temperature at three (3) degree intervals until corrected.

## Shutdown Procedure

In preparation for shutdown for periods of four (4) hours or more, follow equipment manufacturers guidelines for the machine, hose and gun. Ensure that the drummed material is properly sealed.

## Handling and Safety

Respiratory protection is Mandatory! All precautions should be taken to avoid occupational exposure as well as protecting the working area to avoid unintended exposure by others. Supplied air and a NIOSH approved full face mask respirator must be used during the application as well as chemical safety goggles, protective, non-absorbent gloves and Tyvek suit properly secured around wrists to avoid any and all skin exposure.

Positive pressure ventilation of the work area is recommended to minimize the accumulation of vapors in the work area during the application. Improper application techniques of this foam system must be avoided. Any interior area, even with proper ventilation, should be considered a Confined Space and be treated with utmost precaution. Atomized vapors should not exceed TLV .02 parts per million of isocyanates. Avoid breathing vapors. Persons with known sensitivities or allergies should avoid exposure completely. If inhalation occurs, remove person from contaminated area and administer oxygen if having difficulty breathing. Call a physician immediately. Avoid contact with skin, eyes and clothing. Open containers carefully, allowing any pressure in the container to be relieved safely. Any contact with material should be washed thoroughly with soap and water. Wash clothes before reuse. Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs warning all adjacent workers and trades to avoid the area. Ensure warning signs are visibly posted at job site that welding, soldering and torch cutting should take place no less than 45 feet from exposed in situ cured foam. If work must be performed, the polyurethane foam should be properly covered with an appropriate fire or welders blanket and fire watch should be provided. A protection program developed by the Center for Polyurethanes Industry / CPI is a available for download at www.polyurethane.org. Spray Polyurethane Foam Alliance / SPFA also provides significant safety resources at www.sprayfoam.org, or can be reached directly at 571-748-5003.

## In Case of Spills or Leaks

- Utilize appropriate personal protective equipment (PPE)
- Contain and cover spilled materials with loose, absorbent material such as Oil-Dry, Vermiculite, sawdust or Fuller's Earth
- Shovel absorbent waist material into proper waste containers
- Wash the contaminated area thoroughly with hot and soapy water
- Ventilate area to remove vapor
- Report sizable spills to proper environmental agencies

## Jobsite Hazards

The potential results of improperly applied materials may include but not limited to excessive heat build-up which could result in a fire or offensive odors which may not dissipate over time and / or poor product performance due to improper density of the applied material. This includes excessive thickness beyond recommended application passes, off ratio material, and spraying into rising foam. Large masses of sprayed materials should be avoided. If large masses are generated they should be removed from the area, cut into small pieces, wetted down and allowed to cool before disposal. Failure to follow this recommendation may result is a fire. It is recommended that a fire extinguisher be located in the work area to ensure easy access.

## In case of Fire Extinguishing Media

Use dry chemical extinguishers such as mono Ammonium phosphate, potassium sulphate and potassium chloride. Additionally, use carbon dioxide, high expansion chemical foam or water spray for large fires.

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