

## FLUSHING FOR STORAGE PROCEDURE

This bulletin will explain the necessary steps to flush proportioning equipment in preparation for long term storage. In the event that the proportioning equipment is not going to be used for an extended period of time or the equipment needs to be flushed for use with another manufacturer's plural component spray system, the following procedures should be used to ensure all of the internal wetted parts are clean.

When flushing the proportioning equipment, it is important to thoroughly flush the internal wetted A-side component parts to eliminate the possibility of crystallization. The A-side or isocyanates (iso) is an activator used in plural component foam and plural component coatings systems. Iso will react with water/moisture (such as humidity) to form small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the iso will begin to gel, increasing in viscosity, and eventually harden into a solid mass. If the A-side components are left to harden, the components will have to be replaced before further use. The amount of film formation and rate of crystallization varies depending on the blend of iso, humidity, and the temperature in and around the proportioning equipment.

### THE FOLLOWING STEPS WILL ENSURE PROPER FLUSHING OF INTERNAL WETTED COMPONENTS:



Spraying or dispensing materials containing isocyanates creates potentially harmful mists, vapors, and atomized particulates.

Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to isocyanates.

Prevent inhalation of isocyanate mists, vapors, and atomized particulates by providing sufficient ventilation in the work area. If sufficient ventilation is not available, a supplied-air respirator is required for everyone in the work area.

To prevent contact with isocyanates, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons, and goggles, is also required for everyone in the work area.



Cross-contamination can result in cured material in fluid lines which could cause serious injury or damage equipment. To prevent cross-contamination of the equipment's wetted parts, **never** interchange component A (isocyanate) and component B (resin) parts.

### MATERIAL LIST

- Four empty 5 gallon pails (new), 2 pails each per A and B-side
- Rags
- Spill absorbent
- PPE
- Ventilation fans
- 15 gallon plasticizer (DOP/TSL), 7 gallon each per A and B-side
- 10 gallon EB solvent, 5 gallon each per A and B-side
- Zero moisture lithium grease
- Marine grease

### FLUSHING

- Put on all necessary PPE: chemical resistant suit and gloves and the proper respiratory protection.
- Pour approximately 3 gallons of plasticizer into each 5 gallon pail.
- Remove transfer pump from the A or B chemical drum.
- Tip the transfer pump upside down over a waste container in order to remove any excess chemical that is located in the top end of the lower displacement frame.
- With a clean rag, clean the exterior of the transfer pump to remove any excess A or B chemical. Be sure not to cross-contaminate the rags from one pump to the next.
- Insert the appropriate transfer pumps into the individual pails of plasticizer and secure pumps.
- Attach air to transfer pump and open any necessary ball valves or safety valves.
- With the spray gun removed from the end of the spray hose, attach the fluid manifold to the circulation block. Using JOG mode slowly begin to purge the A or B chemical from the hoses into an empty waste bucket.
- Once the plasticizer has been used and the bucket is empty, turn off JOG mode and shut off the flow of chemical and any safety valves. Remove the transfer pump from the plasticizer and insert into the bucket of solvent and secure the transfer pump.



- Again, open any necessary ball valves and air connections and start the flow of solvent, purging the plasticizer into the waste bucket.
- Once the solvent is flowing, put the proportioning equipment in JOG mode.
- Once the plasticizer has been thoroughly purged through the proportioning equipment and a complete stream of solvent is noticed from the end of the circulation line, turn off JOG mode and stop the flow of chemical.
- Insert the circulation line into the bucket of solvent and circulate for approximately 30 minutes while using JOG mode.
- After approximately 30 minutes, turn off JOG mode and close any necessary ball valves and air connections, insert the transfer pump into the remaining bucket of plasticizer and purge the solvent with the remaining plasticizer.
- Once the solvent has thoroughly been purged from the proportioning equipment and there is a continuous stream of plasticizer flowing from the end of the circulation lines, the proportioner should be parked or retracted and any auxiliary equipment should be shut off and secured.
- Using a clean rag, wipe the external frame of the transfer pump with plasticizer.
- Apply a liberal amount of zero moisture lithium into the cup at the top end of the lower displacement frame.
- Install the transfer pump into a clean waste bag and secure.

Review the SDS for the plasticizer and solvents that will be used and follow any recommended ventilation, PPE and chemical disposal procedures.

#### **FLUSHING THE ISO PUMP LUBRICANT**

- Remove and replace the TSL/DOP from the iso pump reservoir
- Holding the reservoir cap over a suitable waste container, insert the inlet hose and check valve into the reservoir and allow the lubricant to drain from the discharge hose and check valve.
- Put the proportioner in JOG mode. This will purge the old, gelled DOP/TSL from the iso lube pump, through the discharge check valve. The inlet check valves should be closed and the fluid manifold manual valves should be open. Make sure the discharge circulation lines are secure over a waste container.
- When the reservoir is flushed clean, fill with fresh lubricant, approximately 3/4 full.
- Thread the reservoir onto the cap assembly and place it in the bracket.

#### **REACTOR E-SERIES BEARING MAINTENANCE**

- Remove the plastic end cover on each end of the gear drive housing by removing the four Philips-head screws in each cover.
- Once the covers are removed apply a liberal amount of marine grease into the cylinder at the top of the bearing housing. This will ensure that the bearing doesn't seize while not in use.
- Re-install the screws and cover at the ends of the drive housing.

#### **STICK PUMP MAINTENANCE**

- Remove the air cylinder that houses the piston rod and air motor from the top-end of the transfer pump.
- Using a clean rag, wipe and clean any grease, moisture or debris that may be on or around the air motor or interior of the air cylinder.
- Apply a liberal amount of grease on the o-rings and seals that are located on the air motor.
- Re-install the air cylinder at the top-end of the transfer pump and close off the air nipple or needle valve.