FUTURA

ITW Futura Coatings

MATERIAL HANDLING

ISO 9001

GENERAL STORAGE

- Off the ground.
- Away from moisture.
- Inside a dry building.
- Kept closed to atmospheric air.
- Do not store below 50° F.
- Do not allow water to collect on drum or pail heads.

MOISTURE PROTECTION

- All reactive polyurethane materials are moisture sensitive.
- Keep from moisture during handling, storage, preconditioning procedures and application.
- Do not open until ready for use.
- Use nitrogen blanket or makeup air desiccant.

COLD CLIMATE TRANSPORTATION

- Many polyurethane's may solidify or "Freeze" by crystallization when exposed to temperatures below 40°F.
- Heated trucks should be used when temperatures are expected to be at or below this temperature.

MIXING

WHY ?

- To insure a complete dispersion of pigments, fillers or other ingredients that may have separated as a result of transportation or storage.

MIXING

- All of Futura's plural component urethanes require power mixing of the "B" component and sometimes the "A" component.
- 10 to 15 minutes is usually sufficient to obtain completely homogeneous mixtures.

MIXING

- Size mixers to insure all materials in the container are in motion during the mixing process.
- A collapsible prop mixer designed to enter a 2" bung must be used.
- Extreme care must be taken to insure separate mixers are used to prevent cross contamination.

MIXING

- It is good practice to probe the bottom of a new drum of material before using it to determine if there is any settling.
- If settling is found, break up the settled material so that the power mixer can homogenize the mixture.

MIXING

- Position the mixer at an angle (off center).
  - Avoids vortexing and the need for tank baffles.
  - Achieves strong top to bottom turnover.

MIXING

WHEN AGITATING, DO NOT MIX HUMID AIR INTO THE MATERIAL.

A drum protected with a dry air flow or blanket will eliminate moisture being absorbed into materials. Moisture can cause foaming, pinholing and other moisture related problems

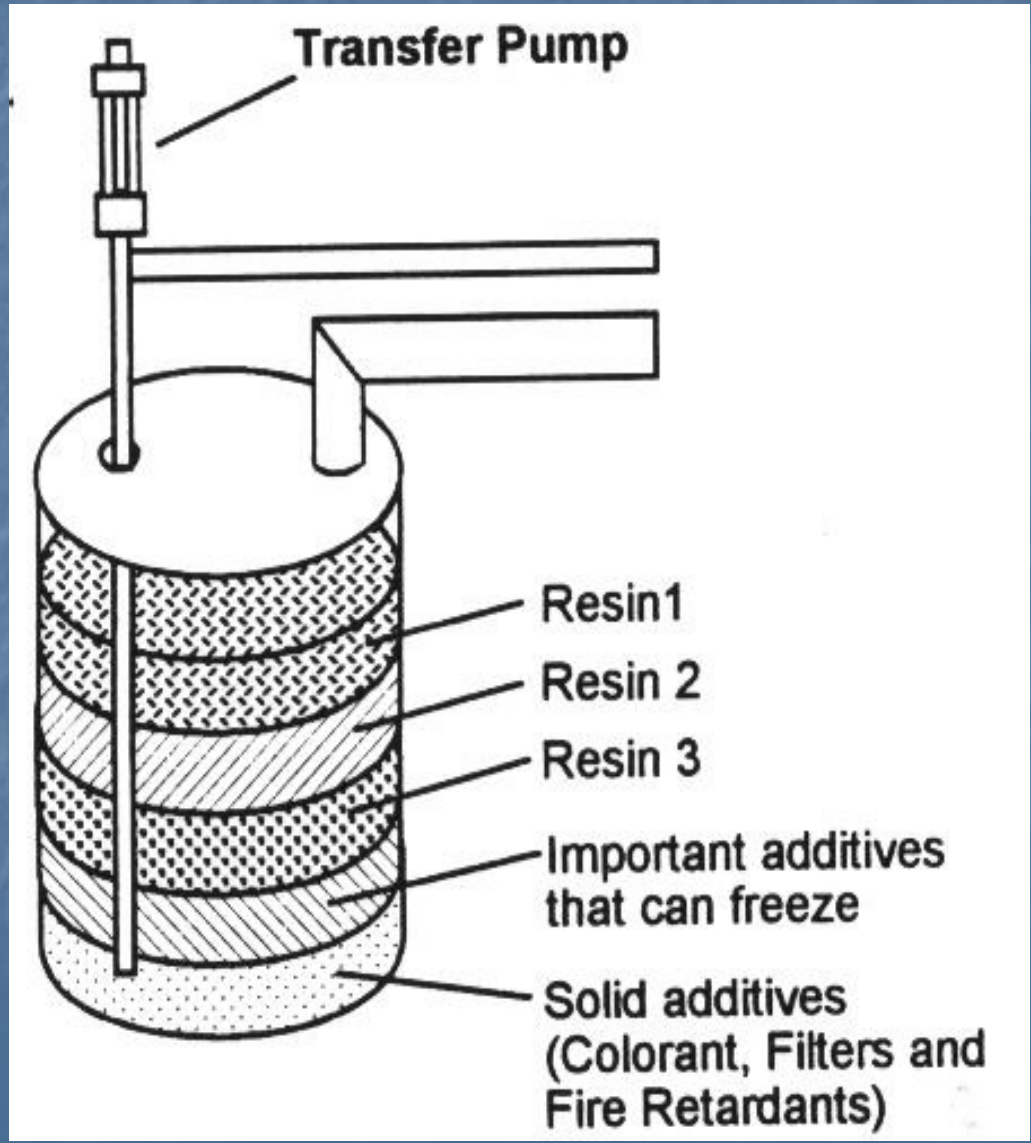
PHASE SEPARATION

? WHAT IS IT ?

- A separation between ingredients, similar to what happens with oil and vinegar.
- Depending on the product this can occur daily or it may not occur for weeks or months or not at all.

PHASE SEPARATION

FUTURA specifically formulates it's products to have maximum storage stability. However, this drawing shows a worse case scenario of what can happen to a material if it has sat in storage through cold weather



PHASE SEPARATION

!! IMPORTANT !!

- If a material is not mixed thoroughly prior to use, the transfer pump will pump one of the *"phase"* separated ingredients out of proportion to the rest.
- The result will be a product which does not cure properly.
- Symptoms would be tacky, gummy, uncured or inconsistent applied product.

PRE-CONDITIONING

- All Futura products are designed to spray at material temperatures of 70-90°F.
- At lower temperatures material viscosity increases making pumping through the transfer pumps to the proportioner much more difficult.
- Cooler material temperatures will also cause the heating system to have a harder time raising the materials to the 130-150°F application temperature.

PRE-CONDITIONING

- At low temperature the materials may freeze or form crystals which will clog filters and check valves.

PRE-CONDITIONING

- The key to warming the material is uniformity and to avoid exposing the material to excessive heat or moisture.
- Place drums on a pallet or insulation to insure that a concrete floor does not act as a heat sink.

PRE-CONDITIONING

Methods

- Heat Room -- (Best)
- Band Heaters / Agitation -- (Good)
- Recirculation -- (Good)
- Band Heaters (alone) -- (OK)

PRE-CONDITIONING

Heat Room

- Preferred Method.
- Keep temperature at 70-90° F.
- Measure room temperature at the floor.
- Attach a thermometer to the drums or pails to insure that they have come up to temperature.

PRE-CONDITIONING

Band Heaters with Agitation

- A variety of heaters are available.
- Do not leave the heaters set on maximum, especially on a partially filled pail/drum to avoid overheating.
- Slow agitation will help heat the material quickly and uniformly.

PRE-CONDITIONING

Recirculation

- One of the quickest ways to increase temperature.
- Use the transfer pumps only ***(do not engage the proportioner)***.
- Recirculate through the system and heated hose or through a recirculation hose teed off after the preheaters.

PRE-CONDITIONING

Band Heaters (alone)

- Adequate if certain precautions are taken
- *Must* agitate or hot spots will occur
- *Do not turn heaters to maximum* as this will also cause hot spots.

HUMID AIR EFFECTS

- Both components of a polyurethane will be affected by allowing moist, humid air to get into the containers or drums.

HUMID AIR EFFECTS

Component "A"

- Is the isocyanate component and a crusty skin will form on top of the material.
- As the liquid level drops the skin will crack and drop crystals into the material.
- These crystals will then cause spray problems by clogging filters and creating excessive equipment wear.

HUMID AIR EFFECTS

Component "B"

- Not usually reactive with moisture and humidity but it is *"hydrophilic"* (likes to absorb moisture).
- When mixed with the "A" component this absorbed moisture can/will cause foaming and possibly pinholing.

HUMID AIR EFFECTS

Recap

- High humidity causes:
  - Crystallization in the "A" component.
  - Potentially an increased viscosity in the "A" component.
  - A foaming or microcellular problem with the sprayed material.
  - Pinholes in the coating.

HUMID AIR EFFECTS

Solutions

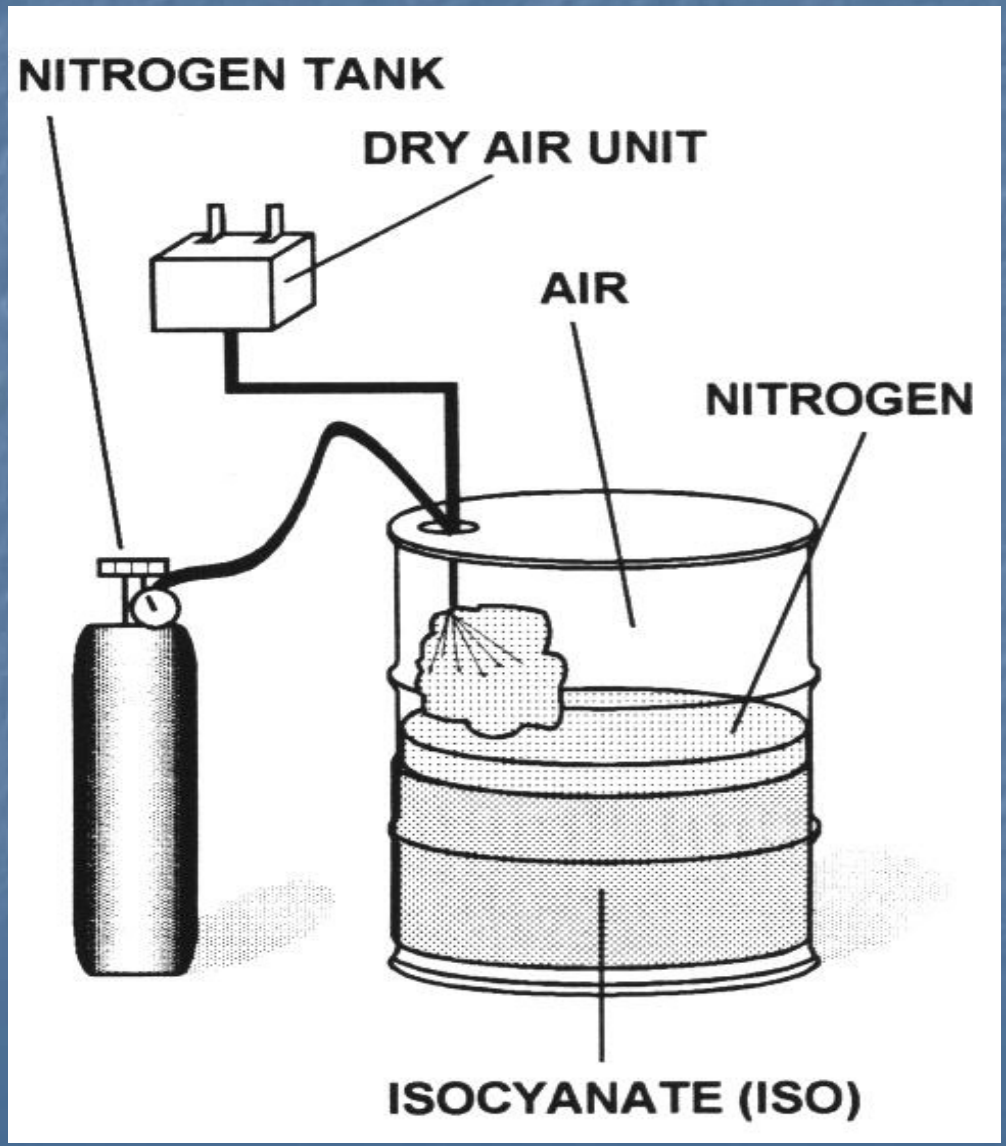
- Method #1 - Introduce Dry Air
  - Set up a dry air system and keep a slow, continuous stream of air purging the container during use and overnight storage.

HUMID AIR EFFECTS

Solutions

- Method #2 - Nitrogen Purge.
  - Nitrogen is heavier than air so when it is introduced into the container it will fall to the level of the liquid in the container and "block off" the humid air from the material.
  - Usually introduced several times a day, but especially for an overnight shutdown.
  - Best way to store partially used containers for long periods of time.

Nitrogen Purge Set Up



Questions ??????