

STORING, HANDLING & USING AQUEOUS COATINGS

Aqueous coatings are best stored at room temperature, 20-22 C, 68-72 F. Do not freeze. Stored as recommended without exposure to freezing or elevated temperatures, aqueous coatings generally have a 6 month shelf life.

Aqueous coatings may be thermoplastic or thermoset, emulsion or solution polymer blends. The major volatile component is water along with small percentages of other volatile items. Some of these, such as ammonia or amine can evaporate and accumulate in the headspace of a sealed container, therefore opening is best done in a well ventilated area.

When a container of coating is delivered to press side for use it should first be stirred well. This is best accomplished using an air or electrically powered "Lightning mixer", available inexpensively from supply houses such as W. R. Granger & Co. A 55 gal. drum of coating may be thoroughly mixed in 5 min. as opposed to a hard 15 min. hand paddle stir.

After thoroughly mixing, make a viscosity check using a clean, undamaged Zahn cup only, recording coating temperature/viscosity. Knowing the temperature of a coating is important because as a coatings temperature rises it flows easier and as its temp. decreases it resists flow. No viscosity dropping adjustments should be attempted with water additions at this point!

Connection to the pumping mechanism can now be made to establish coating circulation to and from the coater. This circulation will warm the coating in a short time to an ambient running condition. After 15 min., make another viscosity/temperature check. Viscosity testing is best done by the same person, in the same way, all of the time. If viscosity adjustment is required now is the time, following coating supplier's technical advice. Beware water adds reduce a coatings' solids so that with the same coater settings the wet applied weight is the same, but the dry coating film will be thinner and weigh less.

Set up the coater to manufacturers' recommendations. Above all run a "kiss" impression so that there is minimum pressure. Avoid repetitive starts and stops. Do your make-ready before supplying coating to the coater. Whenever the press is stopped, remember to water spray any blanket, plate or roller surfaces that are not rotating and being rewet with coating. Aqueous coating on these surfaces will dry just like the coating dries on a printed sheet. When starting-up again, wash down these surfaces so that they're tack free.

When a drum of coating is depleted to about 1/4 remaining, the coating will be thicker due to the evaporation of volatiles aerated over the coater cylinders. It is recommended that a drum reaching this level be replaced with a fresh drum with the remains held for addition to the fresh drum as it is run down enough to hold the addition. Always cover an opened drum. When storing a partially used drum, place a piece of polyethylene film into the container in direct contact with the coating before lid closure. This stops the evaporative loss of volatiles into the drum headspace.

Use a diaphragm pump to pump and circulate coating from the supply container to the coater and back. Run the pump at a rate that satisfies the coater demand and does not recirculate coating excessively, creating foam.

The coater supply and return lines can be connected to fittings mounted in a drum cover. Connect both the suction line and return line to rigid PVC pipes plumbed to reach the drum bottom. The suction feed pipe should be fitted with a wire mesh ball filter such as is available from Royce. This filters male thread allows it to be screwed into a PVC fitting. Printers that use large amounts of satin and matte coatings should consider an in-line filter such as is available from Graymill. The return pipe reaching into the drum should be cut with a 45° angle at its bottom. Ideally the PVC pipe is cut its entire length with spaced vertical 4" long x 1/4" wide slots. Returned coating will then flow into the drum without splashing and generating foam.

When handling aqueous coatings avoid direct skin and eye contact. Wear protective glasses, clothing and rubber gloves. Avoid prolonged inhalation of evaporated vapors and ingestion.

Spilled coating is very slippery. Ventilate, mop up or absorb using inert material and avoid falls. Dried coating will leave a very tough film but it can be removed from equipment with a strong ammonia/water mix or oven cleaner.

Solvent free aqueous coatings have no flash point, therefore there is no fire hazard danger.

Empty containers should be disposed of in accordance with local regulations, some of which will allow the discharge of wash water or (50-100 to 1) water diluted coating to publicly owned treatment works. Clean wash water may also be used to lower a coatings viscosity.

AQUEOUS COATING PRESSROOM CHECKLIST

- SET UP COATING UNIT TO SPECIFICATIONS
- CHECK VISCOSITY OF COATING AT SPECIFICATION TEMPERATURE
- PACK BLANKET CYLINDER TO CORRECT BLANKET HEIGHT
- CUT PACKING SQUARE FOR IMAGE AREA, LEAVE COLOR BARS UNCOATED
- USE THREE PLY BLANKET FOR SHARPER EDGES
- KISS IMPRESSION TO SHEET
- DO BREAK-AWAYS FOR CORRECT BACK-CYLINDER PRESSURE
- KISS APPLICATING ROLLER TO BLANKET 1MM TO 2MM
- CHECK INK SETTING USING UNCOATED COLOR BARS
- CHECK COATING EDGES ON SHEET
- VERIFY SPRAY POWDER SETTING FOR MINIMUM
- CHECK SHEETS FOR CORRECT LAY OF SHEET IN DELIVERY
- CHECK COATING DRYNESS BY FEEL AND PILE TEMPERATURE
- CHECK COATING APPLIED USING REFERENCE SAMPLES AND/OR GLOSS METER
- DOUBLE CHECK COMPLETE DRYER SYSTEMS SETTINGS
- RUN TIGHT INK/WATER BALANCE

This 9"x11 1/2" laminated checklist is available through your Cork sales & technical representatives or by contacting Cork at 610.522.9550, 610.522.9659F, corkindustries@worldnet.att.net