ELANTAS
Electrical Insulation

Technical Information
Secondary Insulation

TI-4004 –
Water Based Resin Maintenance

A member of ALTANA

Processing Guide for Handling Water Based Resin Systems

What is Non Volatile Material or Solids?
Non Volatile Material(NVM) or solids is the film forming portion of the applied material and the remainder would be volatile. The volatile portion can contain water, solvent and pH adjusters(amines). For reduction of NVM or solids, it is recommended to use distilled water for the best possible results. If the water in the area of use is good quality drinking water it may be used. If the water is not of good drinking quality, then it is recommended to use deionized, distilled or osmotic filtered water. It is also very important that tanks of water based resins be covered when not in use to minimize loss of water, co-solvent and pH adjusters. Technical recommendations may be made upon request. It is the responsibility of the customer to make recommended adjustments to maintain the integrity of the product.

There are a number of various water based type materials; two examples are listed below:

Water Soluble Resin Systems:
Stabilization is accomplished with periodic adjustments of water, co-solvent, pH adjusters or a combination of all three. The pH adjusters help keep the material soluble in water. Some resins systems only need the pH adjuster and water; while other systems, due to the specific polymer, require additional solvent to help solubilize the resin system and allow it to apply a good film. Systems which require pH adjusters normally need to be at a minimum 8.0 pH during processing and before adjusting with water and/or water/co-solvent. It is very important that adhering to and keeping the resin's pH adjusted and a minimum replenishment of fresh material to ensure stabilized water soluble resin system. **Note:** Please refer to the paragraph above regarding considerations when adding water.

Epoxy Emulsion Resin Systems:
No need for pH adjusters to stabilize the resin system, just add water. The technology used for this system is a blend of material that bridges the gap of the hydrophilic and hydrophobic nature of the resin. The resin is emulsified by a combination of chemical modification and mechanical dispersion to reach an optimum particle size distribution. These resins can be reduced with water only. **Note:** Please refer to the paragraph above regarding considerations when adding water. For Hermetic applications it is recommended to use deionized, distilled or osmotic filtered water.

NVM Reduction:

- Follow Personal Protective Equipment(PPE) guidelines as appropriate.
- It is always best to mix the resin to insure it is homogenous before adjusting NVM.
- For water soluble resins it is best to test pH to insure it is 8.0 minimum before adding water, addition of pH adjuster to 8.0 or greater should be done prior to addition of water.
- pH adjustment is not necessary with Epoxy Emulsion, but agitation prior to adjusting is required.

Note: For all water based resin systems, addition of water should be done under agitation to insure material is homogenous.

Example of a Water Soluble Resin:

ELAN-Safe™ 210U01-75 - 9.42 pounds per gallon 75.00% NVM

Water - 8.33 pounds per gallon		**NVM**
ELAN-Safe™ 210U01-75	(By weight) - 100.00 pounds resin add 50.00 pounds water (By volume) - 100.00 gallons resin add 56.50 gallons water	**50.00%**
ELAN-Safe™ 210U01-75	(By weight) - 100.00 pounds resin add 100.00 pounds water (By volume) - 100.00 gallons resin add 113.00 gallons water	**37.50%**
ELAN-Safe™ 210U01-75	(By weight) - 100.00 pounds resin add 200 pounds water (By volume) - 100.00 gallons resin add 226.00 gallons water	**25.00%**

Example of an Epoxy Emulsion Resin:

ELAN-Guard™ EM 59-60MR - 9.10 pounds per gallon 60.00% NVM

Water - 8.33 pounds per gallon		**NVM**
ELAN-Guard™ EM 59-60	(By weight) - 100.00 pounds resin add 20.00 pounds water (By volume) - 100.00 gallons resin add 21.80 gallons water	**50.0%**
ELAN-Guard™ EM 59-60	(By weight) - 100.00 pounds resin add 60.00 pounds water (By volume) - 100.00 gallons resin add 65.50 gallons water	**37.50%**
ELAN-Guard™ EM 59-60	(By weight) - 100 pounds resin add 140.00 pounds water (By volume) - 100.00 gallons resin add 153.00 gallons water	**25.00%**

These are typical guidelines, if you specific questions contact ELANTAS PDG, Inc. Technical Service.

Transportation/Storage/Shelf Life

Water Soluble Resin Systems:
Should be stored at 25°C (77°F) in a dry controlled environment out of direct sunlight. These materials should be suitable for use when stored under these conditions in the original sealed containers for six (6) months from the date of shipment. Failure to store this product as recommended above may lead to deterioration in product's performance and invalidate shelf life. Agitate before use.

If material freezes, allow it to come back to 25°C(77°F), mix well to insure it is homogenous, check pH and adjust if necessary to minimum of 8.0 then reduce as normal.

Epoxy Emulsion Resin Systems
Freeze/Thaw testing has concluded that the Epoxy Emulsion system is stable after two cycles with no agitation and no observed losses of properties. Storage recommendation are between 5°C(40°F) – 40°C(104°F) in a dry controlled environment out of direct sunlight. This material should be suitable for use stored under these conditions in the original sealed containers for twelve (12) months from the date of shipment. Failure to store this product as recommended above may lead to deterioration in product performance and invalidate shelf life. Agitate before use.

If the Epoxy Emulsion has been frozen, allow the material to come back to 25°C (77°F), mix well to insure it is homogenous, and check the appearance of the material. If the liquid has a smooth consistency and has not separated, it is acceptable for use. If the liquid appears lumpy or separated, its quality may have been compromised by exposure to freezing temperatures. Normally the resin will need to be reworked by proper mixing @ ELANTAS PDG, Inc.

EPDG will re-inspect epoxy emulsion resin (a fee for this service may apply) at the customer's request.
Please contact ELANTAS PDG, Inc. Technical Service or your authorized distributor for more information regarding this service.

Phone number 1.314.621.5700 Extension 717 or 1.800.325.7492 Extension 717

The above properties are typical values and are not intended for specification use.