

Handling of Solid Alkylphenols/Formaldehyde Resins in Bags or Supersacks

The following is a suggested handling procedure for solid alkylphenols/formaldehyde resins in bags or supersacks. The intent of this handling procedure is to give experienced material handlers, who are knowledgeable in the use of their equipment, a general outline. The procedure should be modified to accommodate each plant's unique environment.

All personnel who may work with solid alkylphenols/formaldehyde resins should read all of the information provided in the Material Safety Data Sheet (MSDS). The proper Personal Protective Equipment (PPE) for unloading these materials includes, but is not limited to:

- Rubber gloves
- Safety glasses with side shields
- Dust respirator (except with dust controls in place and low-exposure operation)
- Full-body dust protection (recommended for maximum protection)

Bags

SI Group's solid alkylphenols/formaldehyde resins may be packaged in multi-wall bags, such as polypropylene-lined kraft paper bags. The bags are filled by weight – 25 kg (55.07 lb) for most products. After the bags are filled, they are stacked on wooden pallets – 40 bags per full pallet. The completed pallet is stretch wrapped with polyethylene film.

Supersacks

SI Group's solid alkylphenols/formaldehyde resins may be packaged in 28 or 35 cu ft supersacks, which are constructed of polypropylene with a proprietary liner. The supersacks are filled by weight – 350 kg (772 lb) or 500 kg (1103 lb) for most products. Biphenol is packaged in 1000 kg (2205 lb) supersacks. After the supersacks are filled, they are stacked on wooden pallets – one or two supersacks per full pallet, as appropriate. The completed pallet is stretch wrapped with polyethylene film.

Storage

Solid alkylphenols/formaldehyde resins should be stored in a cool, dry area. Exposure to temperatures above 25°C (77°F) should be avoided to minimize sintering of the product. Packages should be kept closed to minimize product exposure to oxygen, and to keep foreign matter from getting into the product.

If a bag or supersack is only partially emptied, or portions of its contents are used over a period of time, we recommend re-closing the package as tightly as possible to preserve product color and prevent introduction of foreign matter. Unopened bags or supersacks of solid alkylphenols/formaldehyde resins should maintain product integrity for a minimum of 1 year.

Handling

We recommend that pallets of solid alkylphenols/formaldehyde in bags or supersacks be moved by fork trucks.

Most companies have standard operating procedures for loading materials from bags or supersacks to another vessel. When operators or material handlers are in a position to be exposed to solid alkylphenols/formaldehyde resins, they should wear the above mentioned PPE. To avoid sensitization that can occur from prolonged or repeated handling, precaution should be taken such that plant personnel exposure to alkylphenols is minimized. We recommend routine industrial hygiene monitoring to ensure that levels of alkylphenols/formaldehyde resins are kept below Recommended Exposure Limits (REL).

The dust from solid alkylphenols/formaldehyde resins can form an explosive mixture with air:

- We recommend that the worker be grounded during the emptying process and that the product be discharged in such a manner that it contacts a grounded metal surface upon exiting the bag to prevent a static electrical discharge.
- In addition, we recommend that the vessel to which the solid alkylphenol/formaldehyde resin is being added, be purged with inert gas prior to commencement of filling. The oxygen content of air spaces where the solid alkylphenol/formaldehyde resin will be unloaded from the bag should be less than 8%.
- Air handling systems are recommended for managing dust concentrations in areas where this type of product is routinely handled. Areas where solid alkylphenols/formaldehyde resins are handled should be cleaned frequently to minimize the accumulation of dust. Air handling systems should keep the work environment at or below 77°F to prevent dry product from coming in contact with moist skin, as solid alkyl phenol is more readily absorbed into the skin through moist or wet skin. If high concentrations of dust are anticipated, a hygienic showering schedule should be adopted for employees exposed to these dust levels.

We recommend that companies using SI Group's products consider ergonomic controls to reduce potential for injuries during material handling. Repetitive handling of 25-kg bags of product can lead to a variety of musculoskeletal problems. Workers routinely handling 25-kg bags should be instructed in the proper lifting and handling procedures to prevent repetitive motion injuries.