

Technical Bulletin #001: Solidification using OMNI-KAP™

OMNI-KAP™ is currently used to solidify solids such as hypodermics, needles, vials, and contaminated tools, low-level Radioactives, clothing, etc. The two methods for encapsulating these materials are: 1) Add water to the OMNI-KAP™ to obtain a consistency of heavy cream (approximately 5,000 cps.) and dump solids into mix, or 2) Pour mixed OMNI-KAP™ over solids in a suitable container. The water: OMNI-KAP™ ration is from 18% to 35% water based on weight of OMNI-KAP™. Thicker mixes will give higher strengths, but will require some sort of vibration or shaking to release the trapped air.

The disposal of these materials, with exception of Radioactives, is still a “gray area”. Radioactives come under the NRC regulations. And while OMNI-KAP™ meets all NRC regulations, final packaging and ultimate disposal is governed by the most recent regulations. A waste hauler or management company will be able to supply information on containers, sizes and final disposition sites. Medical wastes are covered by both local and state Board of Health regulations.

In most cases, incineration is the final desired disposal. The use of OMNI-KAP™ keeps the hazards safely encapsulated until final disposition. Liquid Hazmat solidification with OMNI-KAP™ is fairly straightforward. Water based liquids may be added to the powder or vice versa. The MOST important factor is viscosity. OMNI-KAP™ is an inorganic cement and is highly alkaline. Viscosities too low to keep in suspension prior to setting will NOT solidify properly. As long as all the powder is properly wetted, too thick is not a problem. When dealing with reactive materials, acids, alkalis, etc., it is best to add the powder SLOWLY to the liquid. OMNI-KAP™ has 375 m.e.q. of available alkali (based on HCl) and will neutralize any aqueous acid. Again, viscosity is the key. The powder will first be used for neutralization prior to solidification. With the exception of fluoride containing acids, all mineral acids (containing no other pollutants) are no longer hazardous after OMNI-KAP™ neutralization and solidification.

Organic liquids that are not water-soluble must be first emulsified. A packing of OMNI emulsifier is included with the lab sizes. Emulsification is covered in the OMNI-KAP™ data sheet and seems not to be a problem in most labs. The only factor to stress is order of addition, emulsifier to waste with stirring, then slowly add water. A smooth well-dispersed mix is desired. In all cases, the more uniform and complete the mixing, the higher the solidified strengths. Disposal is covered by both State and Federal regulations. OMNI-KAP™ solidified liquids meet ALL RCRA regulations. Use the Spill Disposal Chart for individual HazMats. Manifest OMNI-KAP™ treated HazMats as Hazmat solidified with a cementitious media.