

Non-DEHP Materials and Lipids

Many medical-grade plastic tubesets and containers are made from polyvinylchloride (PVC), which occurs naturally as a rigid polymer. In order to make it pliable, PVC tubesets and containers are treated with a *plasticizer* that alters its rigidity. The most commonly used plasticizer is diethylhexyl-phthalate (DEHP).

Intravenous fat emulsions are among a small list of medications known to dissolve DEHP from plasticized PVC containers and infusion sets¹. This plasticizer dissolution is a function of time and the surface area of exposure. ***PVC is not Inherently hazardous to patients, but its most commonly used plasticizer may be.***

There has been considerable public debate about whether or not DEHP constitutes a hazard. The result has been that lipids are administered either from glass bottles (as provided by the manufacturer) or in TPN solutions prepared in containers made from a plastic other than PVC that does not require the use of a plasticizer. Baxa offers TPN bags made of ethylene vinyl acetate (EVA), a medical-grade plastic that does not require a plasticizer.

Most *infusion sets* used to administer 3-in-1 TPN or peripheral lipid solutions are made from DEHP-plasticized PVC tubing. Most commercially available *automated compounders and pumps* use standard DEHP-plasticized PVC tubesets to connect lipid containers to the compounder.

Baxa Corporation provides *alternative non-DEHP tubesets* for connecting lipid containers to its compounders. That tubing is PVC plasticized with trioctyl trimellitate (TOTM), which does not represent a clinical hazard such as may occur with DEHP². Use of this tubing limits the patient's exposure to DEHP that may be extracted from the IV administration set. This alternative tubing is more expensive than the standard Baxa compounder set.

Depending on the intended application, and the level of concern, healthcare providers may use Baxa non-DEHP tubing (Order No. H938 **77** 3), or the standard vented set (Order No. H938 **74** 3), which is made from DEHP-plasticized PVC, for solution connection and mixing with the Baxa compounders. The Rapid-Fill™ Automated Syringe Filler Tube Set (Order No. H938 **90005** 3) is also free of DEHP.

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¹ Trissel, *Handbook on Injectable Drugs, 10th ed*, American Society of Health-System Pharmacists, 1998 pp 500-501

² Miyamoto M, Sasakawa S, *Effects of plasticizers and plastic bags on granulocyte function during storage* Vox Sang 1987;43(1) 19-22