

Compatibility of Drugs with IV Bags & Plastic Tubing (non-DEHP, non-PVC)

Why are some cancer drugs incompatible with certain IV bags and tubing?

Medical IV infusion bags and tubing are constructed from flexible, medical-grade plastics. Polyvinyl chloride (PVC) is a commonly used material, which becomes flexible by adding a softening agent, or plasticizer, such as Di(2-ethylhexyl)phthalate (DEHP). Some cancer drugs interact with these materials creating safety and dosing concerns such as:

- **DEHP leaching:** Some cancer drugs contain surfactants (e.g., Cremophor EL in paclitaxel, Polysorbate 80 in docetaxel and etoposide) that can leach DEHP out of PVC bags and tubing and into the cancer drug infusion solution. Since DEHP can be harmful, causing hepatotoxic and possible carcinogenic effects, these drugs should be administered using non-DEHP materials to prevent contamination.(1, 2)
- **PVC-related drug loss:** Certain cancer drugs (e.g., lipophilic carmustine and thiotepa) can irreversibly bind to (adsorb) or be absorbed into PVC or polyurethane materials. This can result in patients receiving less than the intended dose. To prevent drug loss, these drugs should be administered using non-PVC materials.(2)

The [Cancer Drug Manual](#)'s *Chemotherapy Preparation and Stability Charts* identify which drugs require administration using non-DEHP or non-PVC IV bags and tubing. A guide has been created to explain the differences between PVC, non-PVC, DEHP and non-DEHP IV bags and tubing: [Drug Incompatibility with IV Containers & Tubing: Non-PVC/Non-DEHP Guide](#) (adapted excerpt below). New drugs, drug formulations, and administration materials require individual assessment for compatibility.

Appendix: Quick Guide to Drug Incompatibility with IV Container & Tubing Materials					
Drug Requirements	IV Container & Tubing Materials *				
	PVC with DEHP	Polyolefin †	EVA	PVC with alternative plasticizer ‡	PVC with polyolefin lining
Non-DEHP §	No	Yes	Yes	Yes	Yes
Non-PVC ¶	No	Yes	Yes	No	Yes
Non-DEHP, Non-PVC	No	Yes	Yes	No	Yes

* If unclear from the packaging label, confirm with IV container/tubing manufacturer that all components along the fluid path of the container/tubing are made of compatible materials, including medication and administration ports
† e.g., polyethylene, polypropylene
‡ e.g., TOTM, DINCH, DINP, DEHT

References

1. Containers. Safe Handling of Hazardous Drugs Module 1; 2024. p. 55–6. Accessed Feb 04 2026.
2. Drug Incompatibility with IV Containers & Tubing: Non-PVC & Non-DEHP Terminology. Cancer Drug Manual. Accessed Feb 04 2026.