



ENVIRONMENTAL HEALTH
AND SAFETY

HAZARDOUS MATERIAL FACT SHEET
Shipping Formalin and Formaldehyde Solutions

Please contact unmcehs@unmc.edu prior to shipping Formalin and formaldehyde solutions.

Overview

Formalin is a clear aqueous solution of formaldehyde and methanol used primarily as a preservative. Formalin and formaldehyde solutions may be regulated as a Hazardous Material when shipped by air or ground. The Department of Transportation (DOT) Hazardous Materials Table, Part 172.101, lists multiple entries for formaldehyde solutions including, UN1198, Formaldehyde solutions, flammable; and UN2209, Formaldehyde solutions (with not less than 25% formaldehyde).

Formalin and formaldehyde solutions that are not flammable and contain 10-25% formaldehyde can be regulated, if shipped by air, as UN3334, Aviation regulated liquid. Formalin and formaldehyde solutions at this concentration are noxious and can cause extreme annoyance or discomfort to crew members in the event of a spill or leak on an aircraft.

Classification of Formalin and Formaldehyde Solutions

Refer to the manufacturer's Safety Data Sheet (SDS) to determine the flammability (flashpoint), percentage of formaldehyde, and percentage of alcohol (i.e., methanol) when shipping Formalin and formaldehyde solutions.

- Full strength Formalin contains approximately 37% formaldehyde. DOT regulates these solutions as "UN2209, Formaldehyde solutions, 8, PG III" or "UN1198, Formaldehyde solutions, flammable, 3, (8), PG III", depending on the flammability (percentage of alcohol). **This material must be packaged and shipped by UNMC Environmental Health and Safety (EHS) personnel.**
- 20% Formalin contains approximately 10% formaldehyde. DOT regulates these solutions when shipped by air as "UN3334, Aviation regulated liquid, n.o.s. (formaldehyde), 9, PG III", provided they are not flammable. **This material must be packaged and shipped by UNMC EHS personnel.**
- 20% Formalin shipped by **ground-only** is not regulated as a hazardous material, provided they are not flammable.
- 10% Formalin contains approximately 3-4% formaldehyde and is not

regulated as a hazardous material for ground or air transportation, provided they are not flammable.

Percent of Formaldehyde in Solution	Proper Shipping Name	Shipped by EHS
≥25%	Formaldehyde solutions or Formaldehyde solutions, flammable (depending on the flammability)	YES
≥10.0% but <25%	Aviation regulated liquid, n.o.s. (for air or multi-modal shipments which have the potential to be transported by air)	YES
≥10.0% but <25%	Not regulated (for ground-only shipments)	NO
<10.0%	Not regulated	NO

Examples of Common Formalin and Formaldehyde Solutions at UNMC

- [Formaldehyde solution, 37%](#)
- [Phosphate Buffered Formalin, 20%](#)
- [Neutral Buffered Formalin, 10%](#)
- [Formaldehyde solution, 3.7%-10%](#)

Notes

Consider the percentage of formaldehyde, percentage of alcohol, material flammability (flashpoint), and mode of transportation (ground, air, multi-modal) when preparing to ship Formalin and formaldehyde solutions.

Additional requirements may apply to shipments containing Category A or B Infectious Substances in Formalin and formaldehyde solutions. Please contact Environmental Health and Safety for additional information.