



Poison HOTLINE

1-800-222-1222

September 2015



Do you know how to determine the amount of a substance in grams or mg when you know the % of the product?

For example, health care providers are familiar with D50. D50 is 50% dextrose, which is the same as saying 50 gm of dextrose in 100 mL of water. Administering 1 amp (50 mL) of D50 would give 25 gm of Dextrose in the 50 ml.

In comparison, D5W is 5% dextrose or 5 gm of dextrose in each 100 mL of water. In order to give 25 gm of dextrose by infusing D5W, one would need to give a 500 mL volume. This higher volume would take longer to infuse and may cause fluid overload in some patients.

Hydrogen Peroxide

Hydrogen peroxide (H_2O_2) is an oxidizing agent commonly found in mouth rinses, tooth whiteners, skin disinfectants, hair dyes, and earwax removers. It has many industrial uses including bleaching paper and textiles, and for rocket propulsion. In veterinary medicine 3% H_2O_2 is used to induce vomiting in animals. H_2O_2 is available in concentrations from 3%, commonly used as an antiseptic at home, to >90%, which is used as rocket fuel.

Hydrogen peroxide can be toxic if ingested, inhaled, or if contacts the skin or eyes. When H_2O_2 comes in contact with tissue, it decomposes into oxygen and water. The oxygen causes toxicity through corrosive local tissue injury and oxygen gas formation. The strength of the reaction is determined by the concentration of the H_2O_2 . For example, one mL of 3% household strength H_2O_2 liberates 10 mL of oxygen and one mL of 35% "food-grade" H_2O_2 liberates more than 100 mL of oxygen. These oxygen gas bubbles have the potential to get into the blood stream (gas embolization) and cause significant injury.

Dilute (<10%) H_2O_2 is an irritant, whereas higher concentrations are caustic. Ingestions of small amounts of the household 3% hydrogen peroxide frequently cause spontaneous vomiting, mild throat and GI irritation. The majority of these cases are managed at home with poison center follow-up.

Ingestions of large volumes of household 3% H_2O_2 or small volumes of high concentration H_2O_2 should be evaluated at a health care facility for caustic injury and for oxygen embolism. Health care providers should monitor patients for abdominal pain, hematemesis, confusion, seizures and dyspnea. Desaturations on pulse oximeter, hemodynamic instability and neurological deficits may indicate gas emboli.

Patients with symptoms of oral or gastric injury should have a GI consult for possible endoscopy. Systemic gas emboli may involve any organ, requiring CT scans. Hyperbaric oxygen may reduce the size of the gas embolism.

Contact the IPCC with your hydrogen peroxide cases by calling **1-800-222-1222**.

*Tammy Noble RN, BSN, CSPI
Certified Specialist in Poison Information*

POISON
Help
1-800-222-1222

Hotline Editor: Kimberly Zellmer, PharmD; Deputy Editor: Edward Bottei, MD

Post and share this edition of **Poison Hotline** with your colleagues. Send comments or questions to Poison Hotline, 712-234-8775 (fax) or Tammy.Noble@UnityPoint.org. To subscribe or unsubscribe from this distribution list, contact the IPCC education office at 712-279-3717. Read past issues of **Poison Hotline** at www.iowapoisson.org.