Hydrogen Sulfide, Sulfides and Mercaptans

FORMS: Gas (hydrogen sulfide, methyl & short-chain alkyl mercaptans), liquid (other mercaptans).

ROUTES OF EXPOSURE: Skin and eye contact, inhalation, skin absorption.

SIGNS AND SYMPTOMS:

CNS: Headache, confusion, dizziness, excitement, tiredness and a garlic taste in mouth. Decreased LOC, coma and seizures.

Eye: Chemical conjunctivitis, lacrimation and photophobia.

Cardiovascular: Cardiovascular collapse, tachycardia and arrhythmias.

Respiratory: Irritation of respiratory tract, cough, dyspnea and tachypnea. Respiratory arrest and pulmonary edema may be present.

Gastrointestinal: Nausea, vomiting, hemorrhage, perforation, abdominal pain, painful swallowing, profuse salivation, and burns to the mouth, esophagus, stomach and gastrointestinal tract may occur.

Skin: Dermatitis, sweating and local pain. Cyanosis may be present.

Other: Symptoms may be delayed. The ability to detect the product by smell may be lost after a short exposure time.

Pre-Medical Control
PARAMEDIC

1. Follow **General Hazardous Materials Treatment** protocol.
2. Administer oxygen 10-15 L via non-rebreather mask or BVM.
3. In the symptomatic patient with significant presumed exposure (known chemicals on-scene, on-scene clues such as odor/colored gas, severe and rapid presentation), administer the Cyanokit®.
   A. The starting dose of hydroxocobalamin for adults is 5 g (i.e., two 2.5g vials OR one 5g vial) administered as an intravenous (IV) infusion over 15 minutes (approximately 15 ml/min), i.e., 7.5 minutes/vial. See charts below for pediatric dosing (70 mg/kg).

Broselow (Weight)	**Age**	Cyanokit® Dose (~70 mg/kg) IV/IO	**Cyanokit® Volume to Administer[2] IV/IO**
3-5 kg (6-11 lbs)	**0-2 months**	250 mg	**10 mL[3]**
6-7 kg (13-16 lbs)	**3-6 months**	500 mg	**20 mL[3]**
8-9 kg (17-20 lbs)	**7-10 months**	625 mg	**25 mL[3]**
10-11 (21-25 lbs)	**11-18 months**	750 mg	**30 mL[3]**
12-14 kg (26-31 lbs)	**19-35 months**	900 mg	**36 mL[3]**
15-18 kg (32-40 lbs)	**3-4 years**	1100 mg	**44 mL[3]**
19-23 kg (41-51)	**5-6 years**	1400 mg	**56 mL[3]**
24-29 kg (52-64)	**7-9 years**	1750 mg	**70 mL[3]**
30-36 kg (65-79 lbs)	**10-14 years**	2500 mg	**100 mL[4] (1/2 bottle)**
Adult	**>14 years**	5000 mg	**200 mL[4] (full bottle)**

B. Each vial of hydroxocobalamin for injection is to be reconstituted with diluent (not provided with Cyanokit®) using the supplied sterile transfer spike.
   1. The recommended diluent is 0.9% Sodium Chloride injection (0.9% NaCl).
   2. The line on each vial label represents the volume of diluent. Following the addition of diluent to the lyophilized powder, each vial should be

repeatedly inverted or rocked, not shaken, for at least 30 seconds for the 2.5g bottles prior to infusion, 60 seconds for the 5g bottles.

3. Hydroxocobalamin solutions should be visually inspected for particulate matter and color prior to administration.
    a. If the reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should **not be administered to the patient** and should be discarded.

C. There are a number of drugs and blood products that are incompatible with Cyanokit®, thus Cyanokit® requires a separate intravenous line for administration.

D. Depending upon the severity of the poisoning and the clinical response, a second dose of 5 g may be administered by IV infusion for a total dose of 10g in adults. The rate of infusion for the second dose may range from 15 minutes (for patients in extremis) to two hours, as clinically indicated. Contact medical control for second dose instructions for pediatric patients.