Standard Operating Procedure (SOP)			
Title: **Cobalt Chloride Hexahydrate**			
Approved by:		*Effective Date:*	
David A. Brown,		*Revised Date:*	**June 1, 2009**
Director, EH&S		*Section:*	**CHEM**

1. Purpose

- The purpose is to use cobalt chloride hexahydrate, a water indicator and precursor for synthesis of cobalt compounds, in a safe manner.

2. Physical Hazards

- Chemical Stability: Stable under normal temperatures and pressures
- Conditions to Avoid: Moisture
- Incompatibilities with Other Materials: Oxidizing agents, Alkali metals
- Hazardous Decomposition Products: Hydrogen chloride gas
- Hazardous Polymerization: Has not been reported

3. Health Hazards

- Eye: Causes burns
- Skin: Causes burns. May be harmful if absorbed through the skin
- Ingestion: Harmful if swallowed
- Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract
- Chronic: Target organ: thyroid. Probable carcinogen

4. Personal Protective Equipment

- EYE PROTECTION
  - Safety glasses, goggles or face shields must be worn during operations in which cobalt chloride hexahydrate might contact the eyes (e.g., through vapors or splashes of solution).
  - Ordinary (street) prescription glasses do not provide adequate protection. Adequate safety glasses must meet the requirements of the Practice for Occupational Education Eye and Face Protection (ANSI Z87.1-2003) and must be equipped with side shields.
  - Wearing contact lenses under some circumstances provides workers with a greater choice of eye and face protection (such as goggles or full-facepiece respirators without prescription inserts) as well as better visual acuity. However, the risk is unknown for contact lens wearers compared with nonwearers working with chemicals listed in the NIOSH Pocket Guide to Chemical Hazards [NIOSH 2004]. OSHA recommends against contact lens use when working with acrylonitrile, methylene chloride, 1,2 dibromo-3-chloropropane, ethylene oxide, and methylene dianiline." NIOSH Publication No. 2005-139: Current Intelligence Bulletin 59, Contact Lens Use in a Chemical Environment.
- HAND PROTECTION
  - Use disposable nitrile gloves when working with chemicals.
  - Laboratory personnel should thoroughly wash hands with soap and water before and immediately upon removal of gloves.
- LAB COATS, ETC.
  - Lab coats, closed toed shoes and long sleeved clothing must be worn when handling cobalt chloride hexahydrate to prevent any potential skin contact.
- SAFETY SHOWER/EYEWASH
  - Where the eyes or body of any person may be exposed to cobalt chloride hexahydrate, suitable facilities for quick drench or flushing of the eyes and body must be provided within the work area for immediate emergency use.

- Bottle type eyewash stations are not acceptable.

5. Designated Area for Use and Containment Devices

- All cobalt chloride hexahydrate work must be done in the laboratory fume hood.
- The fume hood's sash must be in the position where a face velocity of 100 feet per minute is achieved.

6. Special Handling Procedures and Storage Requirements

- Peroxide hazard on concentration—do not distill or evaporate without first testing for the presence of peroxides—discard or test for peroxides after 6 months. EM QUANT Peroxide test strips can be ordered through Fisher Scientific, catalogue #M100111 for testing the cobalt chloride hexahydrate for the presences of peroxides.

7. Exposure Monitoring

Users of this chemical are required to notify WFUSM EH&S at 716-9375 so exposure monitoring can be performed to determine exposure level.

8. Waste Disposal

Excess cobalt chloride hexahydrate and all waste material containing cobalt chloride hexahydrate must be placed in a container which is stored in secondary containment with the following label **"HAZARDOUS WASTE COBALT CHLORIDE HEXAHYDRATE"** and disposed through WFUSM EH&S.

9. Spill and Accident Procedures

If spill is greater than 300 ml, do not attempt to clean up the spill. Immediately report the spill to WFUBMC Security at 716-9111 and WFUSM EH&S at 716-9375.

If any exposure or contact to the chemical, rinse affected area under a safety shower/eyewash for 15 to 20 minutes, inform supervisor, and report to WFUBMC Employee Health or Emergency Department.