

Chromic Acid, Waste Volume Reduction Memo

NEWCOMER SUPPLY PRODUCTS CONTAINING CHROMIC ACID:

Chromic Acid 10%, Aqueous	Part 1034
Chromic Acid 5%, Aqueous	Part 10341
Fungus, Grocott Methenamine Silver (GMS) Stain Kit (Soln A)	Part 9121

APPLICATION:

Chromic Acid, also known as Chromium Trioxide, Hexavalent Chromium, Chromium (VI), Cr (VI) and Chromium 6, is used in special stain procedures and is a strong oxidizer and known carcinogen.

The chromic acid waste volume reduction and disposal process initially reduces Chromium (VI) to non-oxidizing and stable Chromium (III) or Cr (III) compound with the use of sodium thiosulfate in an acid (sulfuric) environment. The reduced Cr (III) solution is further neutralized with Sodium Thiosulfate.

Safety risks associated with Chromic Acid are outlined in the SDS and should be evaluated by the user.

WASTE VOLUME REDUCTION PROCEDURE:

1. Chromic Acid solids or solutions should never be disposed of down the drain or sanitary sewer.
2. Collect all full strength and diluted Chromic Acid waste solutions in an appropriate and specifically labeled leak-proof container.
3. Waste volume reduction procedure should be conducted under fume hood with the use of personal protection equipment.
4. Add used Chromic Acid to a 4000 ml flask or beaker until volume reaches 1000 ml.
 - a. See Procedure Note #1.
5. Add concentrated Sulfuric Acid until the pH measurement is approximately 1.0.
 - a. Approximately 60 ml of Sulfuric Acid is required for 1000 ml of a 5% Chromic Acid solution.
6. Add 400 gm Sodium Thiosulfate; mix and combine well. The solution color should become blue-gray.
 - a. If solution color is not blue-gray, add additional Sodium Thiosulfate until the color change is noted.
7. Slowly add 60 gm Sodium Bicarbonate to neutralize the solution.
8. Allow mixture to sit overnight; filter off the precipitate.
9. Dispose of resultant trivalent Chromium Hydroxide precipitate in a safe manner to comply with local, state and federal regulations.

PROCEDURE NOTE:

1. Smaller volumes of Chromic Acid can be reduced and neutralized for disposal. Adjust reagents accordingly.

REFERENCES:

1. Dapson, Janet Crookham, and Richard Dapson. *Hazardous Materials in the Histopathology Laboratory: Regulations, Risks, Handling, and Disposal*. 4th ed. Battle Creek, MI: Anatech, 2005. 241.
2. <http://monographs.iarc.fr/ENG/Monographs/vol100C/mono100C-9.pdf>