ALAROTIVES TO CHROMIC/SULFURIC ACID
For Cleaning Laboratory Glassware

Commonly named Chromerge®, the chromic acid/sulfuric acid cleaning solutions are strong oxidizers, corrosive and quite toxic. For these and other reasons, Environmental Health and Safety encourages the use of substitutes for chromic/sulfuric acid.

Requirements for Alternative
- Removes desired contaminants from glassware
- Is safe to handle (noncorrosive/ nonirritating to skin and eyes)
- Is not a hazardous waste after use (is not corrosive, pH < 2 and pH > 12.5, or has heavy metals)
- Is compatible with the containment device - many concentrated acids (60% sulfuric acid) will cause rapid destruction of high-density polyethylene (Nalgene®) (check with the manufacturer for chemical resistance information)

Commercially Available Substitutes
- Request Material Safety Data Sheets (MSDSs) for each, from the vendor supplying material
- Reactions may give off considerable heat when mixing any of the solutions listed below - mix slowly in a fume hood, wear goggles/ face shield, cool solutions completely before capping
- Product available from primary source agreement vendors
  - Fisher Scientific, 2761 Walnut Ave., Tustin, CA, 92780, (800) 766-7000 or (714) 669-4600
  - Versa-Clean Multipurpose Concentrate® Catalog No. 04-342 Removes grease, clays, dirt, etc., from plastics, glass, rubber, vinyl and other materials
  - VWR Scientific Products, P.O. Box 7900, San Francisco, CA, 94120, (800) 841-0617 or (800) 932-5000
  - RBS-35 Concentrate® Catalog No. PI 27950 Surfactant cleaner for the removal of radioactive isotopes, cleans glass, plastic, porcelain, or ferrous metal surfaces of grease, soil, etc.
  - Additional product resources may be ordered from the distributors listed below
  - Aldrich Chemical Co., Inc., P.O. Box 2060, Milwaukee, Wisconsin 53201, (800) 558-9160 or (414) 273-3850
    - Nochromix® Catalog No. 32869 Prepared in the same way as chromic acid, this crystalline material contains no heavy metals and requires concentrated sulfuric acid
  - International Products Corp., P.O. Box 70, Burlington, NJ 08016-0070, (609) 386-8770
  - Micro 90® Catalog No. 9031 Removes trace organics and metals from glassware for fluorimetry analysis, atomic absorption, and high performance liquid chromatography
  - ESPI, 1050 Benson Way, Ashland, OR 97520, Phone: (800) 638-2581
    - DeContam® Catalog No. KC85D Removes proteinaceous material from glassware used in tissue culture and enzymological analysis. Non-ionic surfactant detergent pH 10.

Making Your Own General Purpose Cleaner
- Sodium (Potassium) Hydroxide in alcohol - dissolve 120 g of sodium (or potassium) hydroxide in 120 ml water; allow to cool; dilute to one liter with 95% ethyl alcohol

References


Visit www.ehs.ucr.edu for additional information or call EH&S at 827-5528 if you have any questions.