

Removal of Carbonates using Hydrochloric Acid

Standard Operating Procedures for Chemicals or Processes	
1 Process (if applicable)	Removal of carbonates using concentrated hydrochloric acid
2 Chemicals	Concentrated hydrochloric acid (HCl, 37%). Hydrochloric acid is corrosive and causes burns on eyes, skin, digestive and respiratory tract. It may be fatal if inhaled or swallowed. Repeated exposure may cause erosion of exposed teeth.
3 Environmental/ Ventilation Controls	Closed containers (polypropylene centrifuge tubes with lids screwed on) handled in lab (HCK 406) without special ventilation measures (vented to atmosphere). This handling includes centrifuging the tubes at up to 3800 rpm in bench top centrifuges located inside and, when necessary, outside the fume hood. Fume hood in HCK 406 is used for chemical handling with open containers (centrifuge tubes, glass beakers). Any handling of hydrochloric acid outside of the fume hood is limited and done with closed containers only.
4 Personal Protective Equipment (PPE)	Lab coat, long pants, closed-toed shoes, double gloves (vinyl gloves + nitrile gloves), safety goggles
5 Special Handling Procedures & Storage Requirements	Unused chemicals are stored in their 2.5 L glass containers in a specially designed and designated acid storage cabinet. In addition, small amounts (40 ml) of hydrochloric acid are stored in beakers with a glass lid in the fume hood. Hydrochloric acid waste, which consists of a mix of 35% hydrochloric acid and 65% water, is stored in a 4 L HDPE storage bottle in the fume hood or in the designated acid cabinet near the fume hood. No acid is stored outside this cabinet and the fume hood, even temporarily.
6 Spill and Accident Procedures	Spill kit is in cabinet under the sink by the lab entrance. The Grab & Go* Spill Kit for Acids (Dry) contains: 3in.x4ft. hazmat socks, 12in.x12in. hazmat pads, KOLOR-SAFE* dry acid neutralizer, scoop with detachable scraper, gloves, splash goggles, chemical classifier strips, chemical classifier chart, disposal bag, 5-gallon bucket with snap-on lid. In the event of a spill, clean up immediately. If the spill is large, isolate area and deny entry. Provide ventilation. Carefully use the dry acid neutralizer to neutralize acid before wiping it up. A vapor suppressing foam may be used to reduce vapors. Approach spill from upwind. If spill is too large for the spill kit, leave the room and call the UW Safety - RMMC at 307-766-3698.. If exposed, remove clothing and use the emergency shower located directly outside of room. If someone is incapacitated, call 911 and initiate first aid if possible.
7 Waste Disposal	For spills: place used absorbent in 4 L HDPE storage bottle. For concentrated hydrochloric acid waste produced from first wash cycle, label with Hazardous Waste Label, accumulate according to requirements, and send in Waste Request form located at: http://www.uwyo.edu/safety . Dilute hydrochloric acid waste produced from second and third wash cycle is neutralized in HCK 406 and poured safely into the sanitary sewer. Neutralization is performed as per RMMC (6-3698).
8 Special Precautions for Animal Use (if applicable)	N/A
Particularly hazardous substance involved?	<input type="checkbox"/> YES: Blocks 9 to 11 are Mandatory <input checked="" type="checkbox"/> NO: Blocks 9 to 11 are Optional.
9 Approval Required	

Individual Chemical SOP Example

 University of Wyoming Safety Web: www.uwyo.edu/safety/ Phone: (307) 766-3277 Email: uwehs@uwyo.edu Regulated Materials Management Center Phone: (307)766-3698 Fax: (307)766-3699 Email: HAZMAT@uwyo.edu

10 Decontamination	
11 Designated Area	
Name (print) (Assessor):	Title:
Signature (Assessor):	Date:
Name (print) (PI, Lab Manager, or Unit Head):	Title:
Signature (PI, Lab Manager, or Unit Head):	Date:
Date Sent to UW Safety:	