

Phytolith Extraction Using Heavy Liquid

Standard Operating Procedures for Chemicals or Processes		
1 Process (if applicable)	Phytolith extraction using heavy liquid (zinc bromide, concentrated hydrochloric acid and water).	
2 Chemicals	Zinc bromide and concentrated hydrochloric acid (37%). Zinc bromide is harmful if swallowed or inhaled. Causes severe irritation or burns to every area of contact. Affects central nervous system, brain, and eyes. 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) may be handled in lab (HCK 406) without special ventilation measures (vented to atmosphere). This handling includes centrifuging the tubes at up to 3400 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 heavy liquid 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 zinc bromide is stored in a specially designed and designated acid / base storage cabinet under the fume hood. Unused hydrochloric acid is stored in 2.5 L glass containers in a specially designed and designated acid storage cabinet. Additionally, prepared but unused heavy liquid may be stored in a specially designed and designated acid / base storage cabinet next to or under the fume hood. Heavy liquid waste, which consists of a mix of approximately 20% zinc bromide, 20% hydrochloric acid, and 60%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 waste 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 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 heavy liquid waste produced during the wash cycles, label with Hazardous Waste Label, accumulate according to requirements, and send in Waste Request form located at: http://www.uwyo.edu/safety	
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		
10 Decontamination		

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
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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:	