

Chemical Safety Procedures - OSHA

General Safety Precautions - When regenerating deionizers or operating R.O. systems, HIGHLY CORROSIVE CHEMICALS are used. GREAT CARE WILL BE TAKEN in the handling of these chemicals.

Material Safety Data Sheets (MSDS): Copies of Materials Safety Data Sheets on all the chemicals we use are given to all new employees of CAL Water. Please read them. Copies of the MSDS sheets are also kept in a loose leaf binder labeled "Materials Safety Data Sheets" in the control room and are available to all employees at all times. Additional copies are on file in the lab.

WARNING: ALWAYS ADD CHEMICAL TO WATER, NOT THE OTHER WAY AROUND. When diluting chemicals, put the water in the container first, THEN slowly add the chemical. Any reaction between the chemical and water will be minimized this way.

Updates to OSHA regulations and MSDS sheets are available on line at:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10106

Caustic Soda

Caustic Soda - (Sodium Hydroxide) (NaOH) is a dissolved alkali solid. Once in contact with the skin it is very difficult to wash off. An affected area of skin will be rinsed with cold water for at least 15 minutes. Caustic dust or mist is a hazard to the upper respiratory tract.

If caustic soda comes in contact with skin, flush with water, DO NOT ATTEMPT TO CHEMICALLY NEUTRALIZE. If caustic soda splashes in the eyes, flush with water for 15 minutes, and CALL A DOCTOR AT ONCE.

WARNING: Always add Caustic Soda to water, not the other way around. When diluting chemicals, put the water in the container first, THEN slowly add the chemical. Any reaction between the chemical and water will be minimized this way.

Safety Equipment Needed For Handling 50% Caustic Soda: Rubber Gloves, Rubber Apron And Face Shield.

MSDS: Copies of the MSDS sheet, "Materials Safety Data Sheet," covering all chemicals used in the facility should be kept available for all employees at all times. If a particular employee is to be working with specific chemicals, he should be required to read the MSDS sheets and pass a test on the contents of the MSDS sheets. The results of the test should go in his employee file.

Chlorine

Chlorine - (Bleach) (Cl 12.5%) is a dissolved gas. The fumes from chlorine are corrosive and unbreathable and can cause burns on contact with any part of the body. Mucous membranes of the eyes and upper respiratory tract are especially susceptible. NEVER inhale fumes given off by chlorine and provide good ventilation where the chlorine is being used. If chlorine contacts the skin, flush with cold water.

If chlorine splashes in the eyes, flush with water for 10 minutes, and CALL A DOCTOR AT ONCE.

Safety Equipment Needed For Handling 12.5% Chlorine: Rubber Gloves, Rubber Apron and Face Shield. If the chlorine concentration is higher than 12.5% then a Face Guard with Respirator is required in place of the Face Shield.

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Hydrochloric Acid

Hydrochloric Acid - (Muriatic Acid) (HCl 35%) is a dissolved gas. The fumes from the acid are corrosive and unbreathable and can cause severe burns on contact with any part of the body. Mucous membranes of the eyes and upper respiratory tract are especially susceptible. NEVER inhale fumes given off by hydrochloric acid and provide good ventilation where the acid is being used. If hydrochloric acid contacts the skin, flush with cold water. The acid can be neutralized with products such as washing soda, but this is usually not necessary.

If hydrochloric acid splashes in the eyes, flush with water for 15 minutes, and CALL A DOCTOR AT ONCE.

Safety Equipment Needed For Handling 34% Hydrochloric Acid: Rubber Gloves, Rubber Apron and a Face Guard with Respirator, not just a face shield.

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Hydrogen Peroxide

Hydrogen peroxide - (H_2O_2 37%) is a strong oxidizer. The fumes from peroxide are corrosive and can cause burns on contact with any part of the body. Mucous membranes

of the eyes and upper respiratory tract are especially susceptible. NEVER inhale fumes given off by hydrogen peroxide and provide good ventilation where it is being used. If hydrogen peroxide contacts the skin, flush with cold water. DO NOT ATTEMPT TO NEUTRALIZE HYDROGEN PEROXIDE IF IT COMES IN CONTACT WITH THE SKIN.

If hydrogen peroxide splashes in the eyes, flush with water for 5 minutes, and CALL A DOCTOR AT ONCE.

Safety Equipment Needed For Handling 37% Hydrogen Peroxide: Rubber Gloves, Rubber Apron and a Face Guard with Respirator.

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Sulfuric Acid

Sulfuric Acid - (Olium) (H_2SO_4 93%) is an extremely strong acid. It can cause severe burns on contact with any part of the body. Once in contact with the skin it is very difficult to wash off. An affected area of skin will be rinsed with cold water for at least 15 minutes. NEVER inhale any fumes given off by a sulfuric acid reaction and provide good ventilation where the acid is being used.

If sulfuric acid contacts the skin, FLUSH WITH COLD WATER IMMEDIATELY. The acid can be neutralized with products such as washing soda.

If sulfuric acid splashes in the eyes, flush with water for 15 minutes, and CALL A DOCTOR AT ONCE.

No Smoking: Do not smoke around Sulfuric Acid. Many Sulfuric Acid reactions give off hydrogen gas which is extremely flammable and **Can Cause Explosion**.

WARNING: ALWAYS ADD SULFURIC ACID TO WATER, not the other way around or a VIOLENT REACTION can occur. When diluting sulfuric acid, put the water in the container first, THEN slowly add the chemical. Any reaction between the chemical and water will be minimized this way.

Safety Equipment Needed For Handling 93% Sulfuric Acid: Rubber Gloves, Rubber Apron And Face Shield.

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