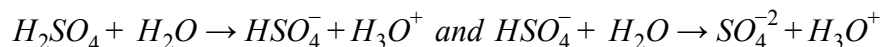


### Procedure to Dilute Concentrated Sulfuric Acid

Sulfuric Acid is a very strong diprotic acid that reacts with water as follows:



**Safety:** Use extreme caution when diluting Sulfuric Acid and never add water to concentrated  $H_2SO_4$  because the reaction is highly exothermic. Dilutions should always be carried out under a fume hood and when dealing with concentrated acid the reaction vessel/beaker may be immersed in a water bath to cool the solution and to avoid glass cracking under the high temperatures. After making a dilution, allow the solution to cool overnight in a ventilated area and do not secure the lid on the container until it has come back down to room temperature.

The following personal protection equipment must be worn:

- Safety glasses
- Lab Coat
- Sulfuric acid resist gloves
- Close toed shoes/rubber boots
- Face Shield/goggles

#### Procedure:

- Ensure proper PPE is being worn and that there is a base nearby such as Sodium Bicarbonate to neutralize any acid spills.
- Calculate dilution using formula  $m_1v_1 = m_2v_2$  where  $m$  is the molarity of the acid and  $v$  is the total solution volume.  $m_1v_1$  are stock molarities and volumes before dilution.
- Place open vessel containing water under a fume hood.
- Slowly add concentrated acid without splashing and stir consistently.
- Monitor solution temperature, should never exceed ~150 degrees F. If so, stop adding acid and wait for solution to cool.
- Continue adding acid until overall solution volume is the volume that you calculated using the formula in the first step. Alternatively, measure out correct amount of acid before.
- Leave solution under fume hood to cool overnight.