

Chemical Hazards: Concentrated Acids, Concentrated Bases and an Oxidising Agent

by Janice Petherick, Peter Harrowell

Experiment Overview

This is a safety experiment, which allows the students to observe the damage that concentrated acids and bases and potassium permanganate can do to different materials in a controlled environment. The students write their own Material Safety Data (MSD) Table and in group discussions discuss their own MSD Tables with actual MSD Sheets.



Learning Experience

This experiment is an effective learning tool as the students get a 'hands-on experience' of the damage the chemicals can do and students participate in group discussions, discussing their results as well as the actual MSD Sheets.

Aims and Objectives

The aim of this experiment is to familiarise the student with the effects of selected corrosive substances. They students prepare their own MSD Tables throughout the experiment on the compounds they have studied.

This is a relevant experiment as science students need to have knowledge of Occupational Health and Safety regulations and Material Safety Data Sheets. This experiment is a good introduction to these areas concerning chemicals.

Level of Experiment

First year undergraduate

Keyword Descriptions of the Experiment

Domain

general chemistry

Specific Descriptors

material safety data sheets, concentrated acids, concentrated bases, oxidising agents

Course Context and Prerequisite Knowledge and Skills

This is a safety laboratory exercise. It is designed to be the first experiment the students carry out. Therefore, there is no prior knowledge of chemistry required to complete this experiment. Skill requirements are to be able to follow simple instructions, make observations and participating in group discussions.

Time Required to Complete

Prior to Lab: 30 min

In Laboratory: 3 h (although students generally finish early)

After Laboratory: N/A

Experiment History

This experiment was developed by Professor Peter Harrowell and Dr Janice Petherick for the "First Year Chemistry Laboratory Project" in the School of Chemistry, at the University of Sydney. This experiment has undergone one small trial and two major trials in the first year chemistry laboratories.