

Table 5. Safety considerations⁽⁹⁾

Chemicals factors	Safety concerns	Safety protocol	Ethical and Environmental concerns
Acetic acid	Highly flammable liquid. This acid can cause corrosion and burns if in contact with eyes or skin can cause nasal and respiratory irritation can cause major organ damage if ingested.	Acetic acid was kept away from burners, gas pipes, lighters, and any sort of instrument that could ignite a spark. A lab coat, mask, laboratory glasses, and gloves were worn at all the times when handling acetic acid.	Acetic acid can cause adverse environmental effects if leaked into ecosystem. Thus it was neutralized with Na_2CO_3 to form harmless salts, that were then thoroughly diluted with excess water, before disposing off. No ethical concerns.
Hydrogen	Highly flammable gas thus can be ignited easily. Inhalation can cause nasal and respiratory irritation.	Hydrogen was kept away from burners, lighters and any sort of instrument that could ignite a spark. The room was well ventilated.	High concentrations of hydrogen in the air cause oxygen deficiency. This can lead to the risk of loss of consciousness. Therefore, the gas was released in small quantities (no more than 60 ml) in a well-ventilated room. No ethical concerns.
Magnesium acetate	This compound is a relatively safe compound to handle and has been given a health hazard rating of zero, however. Cause irritation, if it gets in the eyes or skin.	A lab coat, safety goggles, and gloves were worn at all the times when handling magnesium acetate.	No ethical or environmental concerns.
Hot water in water bath	Use of high temperatures solution or water bath can cause significant burns in contact with skin.	The Highest temperature was 60°C. So, it couldn't have caused burns, despite that lab coat and gloves were worn.	