



Procedure for Working with Phenyl Hydrazine and Phenyl Hydrazine Hydrochloride

November 2009

Phenyl hydrazine [PHZ] and its hydrochloride salt (PHZCI) are toxic materials. PHZ has an oral LD50 in the range of 80 to 188 mg per kilogram in rabbits, guinea pigs and rats. PHZCI has an oral LD50 in the range of 25 to 2100mg/Kg in the rabbit, rat and mouse. PHZ and PHZCI bind readily to hemoglobin producing hemolytic anemia in animals and humans.

PHZ is also suspected as a sensitizer that results in allergic reactions on subsequent exposure in humans.

PHZ is mutagenic to salmonella bacteria in vitro and may be genotoxic. PHZ is also a confirmed animal carcinogen in mice. PHZ is classified as an “A3 Confirmed Animal Carcinogen with Unknown Relevance to Humans” by the Association of Governmental and Industrial Hygienists (ACGIH). PHZ has been found to be a teratogen in animals, and has also caused damage to animal reproductive systems.

Both PHZ and PHZCI are readily absorbed through inhalation, via skin absorption, and orally, although systemic toxic effects due to skin exposure have only been seen in humans for PHZ. PHZCI has been reported to be more irritating to the skin.

If adequate precautions are taken it is unlikely that a significant dose of PHZ or PHZCI would be absorbed by a lab worker. In order to minimize exposure the following precautions should be followed.

Preparation of solutions

All usage of powdered PHZ or PHZCI should occur in a properly functioning and tested fume hood. Where possible a solution should be used in place of a solid.

Usage of Solution

In addition to the PPE listed below, solutions of PHZ and PHZP should be used with precautions designed to prevent accidental injection or skin exposure. When injecting into animal subjects, needle guards should be used as well as any restraint or sedation required to the relevant animal species to ensure that accidental injection does not occur.

Personal Protective Equipment (PPE)

At all times impermeable gloves, lab coat and goggles should be used with PHZ and its' hydrochloride. Lab coats should be washed regularly – preferably after each usage – to ensure



that there is no buildup of PHZ or PHZCI that will result in a chronic exposure. This is particularly important in light of the unknown carcinogenic potency of these compounds.

Worker Hygiene

All workers should wash face and hands/arms with soap and water after working with these materials. There should be not eating, drinking or chewing in the lab.

Animal Bedding

Workers should use regular precautions when dealing with soiled animal bedding, including gown, shoe covers, gloves and N95 respirator.

References/Further Information

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