NDSU

POOL/WATER SAFETY

CHLORINE USE/

APPLICATION

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SAFE OPERATING PROCEDURE

I. INTRODUCTION

Safety awareness and safe work practices are necessary when working with and around chemicals. NDSU employees that maintain the swimming pool may be exposed to dangerous chemicals or poisonous gases during their work day.

These are guidelines that shall serve as a reminder of things you can do to work more safely.

II. AWARENESS

Chlorine, a non-flammable gas, liquefied under pressure, is an effective agent that controls bacterial growth. It is used as a disinfectant and algicide in municipal water supplies sewage and water management plants, and in commercial and industrial swimming pools. It is used as a slimicide in water cooling systems and in paper mills.

Chlorine is very dangerous, it is a powerful oxidizing agent. It is very corrosive to most metals in the presence of moisture and must be handled carefully. It should be used and handled only by experienced or licensed users.

III. DANGERS

* Chlorine gas is a respiratory irritant which affects the mucous membranes. It can be detected as an odor at 3.5 ppm and can be fatal after a few breaths at 1000 ppm.

* Maximum air concentrations should not exceed 1 ppm for prolonged exposure.

* Chlorine gas should only be used in well ventilated areas so that any leaking gas cannot concentrate.

* If chlorine is inhaled - move to fresh air. If breathing is difficult, give oxygen, preferably with a physicians advise. Seek immediate medical attention.

* Chlorine is corrosive to eyes, skin and mucous membranes in the presence of moisture.

* In case of skin contact, immediately flush all affected areas with large amounts of running water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention.

* In case of contact with eyes, hold eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Continue to flush with large amounts of water for at least 15 minutes. Seek medical attention.

* Keep chlorine away from intense heat or open sunlight. Storage should be in a dry area away from sources of heat, sunlight and precipitation.

* Chlorine should be kept separate form other compressed gases and never stored near hydrocarbons, metals, turpentine, either anhydrous ammonia or other flammable materials.

* All storage containers must have a weather resistant label attached near the outlet valve and must be accessible to the general public.

* All chlorine containers are returnable. Return them promptly to the supplier according to instructions.

* Never leave a container or cylinder valve open when chlorine is not being used. All cylinder valves must be closed tight and closure or caps secured.

* Use only valves gauges, regulators, fittings, piping, etc. recommended for chlorine service.

* Never tamper with the cylinders or attempt to alter or repair containers/cylinders or valves.

* Notify the chlorine supplier promptly of damaged containers/cylinders.

* Liquid sodium hypochlorite is most commonly used as laundry bleach and is still considered and irritant to the skin, eyes, and if inhaled.

* Chlorine is toxic to fish and aquatic organisms. Do not discharge waste containing this product into lakes, steams, ponds, or other waters except when in accordance with local, state, and federal regulations.

PERSONAL PROTECTIVE EQUIPMENT SHALL BE MANDATORY WHEN IN THE PRESENCE OF CHLORINE.

Goggles	Face shields
Respirator	Protective Clothing
Rubber gloves	