

Laboratory Chemicals

Trade Waste Guideline No. 21

INTRODUCTION

Trade waste discharges from laboratories have the potential to adversely affect the sewerage system. Wastewaters can contain heavy metals, organic solvents and suspended solids. Appropriate management practices at each site are therefore necessary.

This Guideline pertains, but is not restricted to, the following:

- Laboratories involved in routine analytical activities where chemicals are used
- Pharmaceutical and cosmetic laboratories
- Clinical pathology laboratories
- Research institutions, or other facilities, where operations may involve the discharge of chemicals to sewer.

KEY TRADE WASTE QUALITY REQUIREMENTS

PARAMETER	GENERALLY ACCEPTED LEVEL
Suspended Solids	<500mg/L average
Total Dissolved Solids	<1500mg/L
pH	Between 6-10 units
Temperature	<38°C
Heavy Metals (e.g. Cd, Cu, Cr, Ni, Pb)	<10mg/L
Cyanide	<5mg/L
Formaldehyde/ Glutaraldehyde	<50mg/L
Grease/Oil	<100 mg/L
Flow rate to sewer	Dependant on capacity of receiving sewer

Note: Discharge limits may be varied under certain circumstances for individual dischargers.

BEST PRACTICE MANAGEMENT ASPECTS

- Staff must maintain a register of all chemicals stored on site, including industrial strength detergents and other cleaners, with their respective volumes
- Care must be taken in the separate storage of incompatible reagents or waste products.
- All work site staff must be informed of the appropriate methods for treatment of generated wastes and spillages of all products and reactants.

DESIGN / INSTALLATION

- Aqueous wastewaters complying with SA Water's [Standards of Acceptance of Liquid Waste to Sewer](#) may be discharged to sewer.
- The following **shall not** be discharge to sewer
 - Organic solvents or aqueous solutions of organic solvents (without the expressed permission of the Trade Wastes Branch).
 - Liquids which are immiscible with water.
 - Liquids that can release toxic or anaesthetic vapours from solution.

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Further information

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- Solutions of resins or compounds capable of undergoing polymeric reactions which could block sewers or pumping stations.
- Chemicals capable of explosion or combustion.
- Chemicals which are insoluble in water (i.e. less than three percent soluble in distilled water).
- Cytotoxic substances and other pharmaceutical products or preparations.
- All chemical/solvent stores, process and waste tanks shall be bunded in accordance with [Trade Waste Bunding Guideline No. 4.](#)
- All laboratory sinks shall be bunded to prevent bench top chemical spills from flowing to sewer.
- Those wastewaters and process liquors not permitted to be discharged to the sewer must be contained in an approved blind tank and disposed of by a licensed liquid waste contractor in accordance with [Trade Waste Blind Tank Guideline No. 3.](#)
- All radioactive solutions discharged must comply with the Department of Health regulations and be discharged directly to sewer, via a flushing cone and drainer bypassing any effluent holding tanks.
- Wastewaters and process solutions with a pH outside of the range 6 to 10 may be discharged to sewer via a wastewater pre-treatment system that includes a final buffer tank and approved pH adjustment system.

MINIMUM PRETREATMENT REQUIREMENTS

- Removal of all settleable solids by screening, settling or filtration.
- pH correction (if required)

ADDITIONAL PRETREATMENT

- Coagulation/ flocculation
- Precipitation of any metals as required
- If required, submit sample for laboratory analysis (NATA registered or equivalent Laboratory).

ADDITIONAL INFORMATION

Mains Water Protection (AS/NZS3500-2003 Part 1), [Trade Waste Batch Treatment Guideline No.17](#), [Trade Waste General Policy](#),

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