

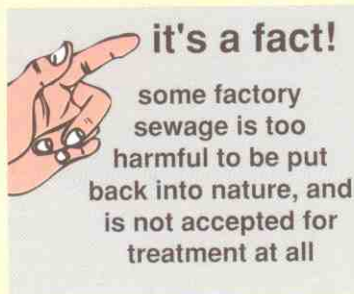
infosheet

CHEMICAL COCKTAILS: INDUSTRIAL AND HOUSEHOLD HAZARDOUS WASTE



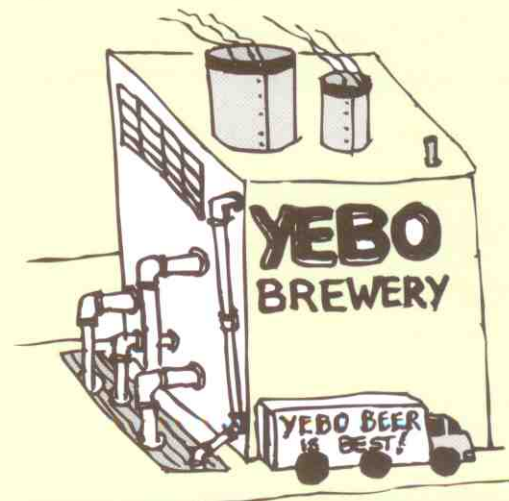
Every time we clean the bath, wash the dishes, bleach our whites, do a load of washing or disinfect the toilet, we introduce chemical mixtures down the sewage pipes. Some chemicals break down quickly and become harmless. Others take weeks or months to break down. Worse still, some do not break down at all! Another danger is that these chemicals mix together in the sewers, and can sometimes form new, even more poisonous mixtures.

Sewage treatment works are designed to treat sewage, not harmful chemical products. These chemicals can interfere with the sewage treatment process. They also increase the costs of treating the 'used' water.



Industries often use strong chemicals in their manufacturing processes and produce hot water in their cooling processes. These can be very harmful to the health of the people and the environment. The Durban Metro Wastewater Management department has very strict laws which regulate the kind of **sewage effluent** that trade and industry can discharge into the sewers. The Department ensures that industries pre-treat their sewage to certain standards before it is discharged into the system.

Industries are charged for sewage disposal on the **Polluter Pays Principle**: Those with a very high volume of sewage, or those with a very high concentration of chemicals in the sewage, are required to pay more as they put a heavy load on the sewage treatment process.





PHOTOCOPY

THINK BEFORE POURING IT DOWN THE SINK!

Speak to your family and friends about household hazardous waste and its safe disposal.

Sewage treatment works are designed to treat only sewage, not hazardous wastes. People's homes are full of **hazardous** wastes. If they land up in the sewage they will prevent the sewage from being 'cleaned-up' properly, and they will increase the costs of the treatment process. It is important to learn to identify hazardous wastes in your home.

NEVER POUR THESE MATERIALS DOWN THE DRAINS!

Type of Hazardous Waste	Place Where it is Kept at Home	Recommended Disposal Method
Fertilizer	_____	Rubbish Bin*
Insecticide	_____	Rubbish Bin*
Rat Poison	_____	Rubbish Bin
Weed Killer	_____	Rubbish Bin*
Floor care products	_____	Rubbish Bin
Furniture Polish	_____	Rubbish Bin
Silver/Brassware Polish	_____	Rubbish Bin
Medicines	_____	Return to pharmacy*
Nail Polish	_____	Rubbish Bin
Battery Acid	_____	Rubbish Bin / Recycle*
Brake Fluid	_____	Rubbish Bin*
Diesel	_____	Rubbish Bin*
Petrol	_____	Rubbish Bin*
2-stroke oil	_____	Return to selected stations
Car oil	_____	Return to selected stations
Paraffin	_____	Rubbish Bin*
Turpentine	_____	Rubbish Bin*
Varnish	_____	Rubbish Bin
Paint	_____	Rubbish Bin
Primer	_____	Rubbish Bin
Lighter fluid	_____	Rubbish Bin
Moth Balls	_____	Rubbish Bin
Shoe Polish	_____	Rubbish Bin
Swimming Pool Acid	_____	Rubbish Bin
Gun cleaning solvents	_____	Rubbish Bin



* - South Africa doesn't yet have facilities for the disposal of these sorts of hazardous wastes. Best option for now is to dispose of them in the municipal rubbish bin.

Throwing any of the above items into the rubbish bin is not really a good idea as environmental pollution will still take place from the rubbish dump. However, South Africa doesn't yet have facilities for the disposal of these sorts of *household hazardous waste*. The best option for now is to dispose of them in the municipal rubbish bin. According to Durban Metro's Department of Wastewater Management, those wastes marked with an *, if in small quantities and thoroughly diluted in water, can be spread evenly over grass.

bright idea!



Encourage your local municipality to establish a facility for disposal of household hazardous waste.



bright idea!



Lobby your local service station to accept used car oil.

List your own

bright idea!





CHEMICALS AND CAREFUL CONSUMERS

When shopping, read the labels of household cleaning products carefully - look out for:

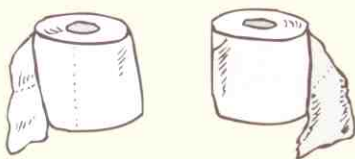
BRIGHTENERS:

These chemicals are usually added to make washing look whiter and brighter.



CHLORINE BLEACHES:

These chemicals are usually added to make washing whiter.



Some important information about the chemicals:

Brighteners break down very slowly, and usually pass through the sewage treatment works.

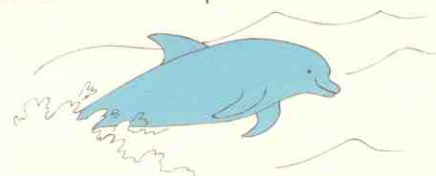
Bleaches break down to produce organo-chlorides. These substances are seldom found in nature and often kill helpful bacteria. They do not break down easily and pass through the sewage treatment works.

The impact of the chemicals on the environment:

Brighteners are known to effect micro-organisms. In particular, they restrict growth and cause mutations.



Organo-chlorides are very poisonous and are known to cause cancer. Many people are worried about the high death rate of young marine mammals such as whales and dolphins, because of the increasing levels of organo-chlorides stored in their blubber.



For You To Do:

Hold a class discussion around the question, 'Do we really need to have everything so white and bright?' Try to examine what is behind the 'white and bright' emphasis. Question whether society can afford this in the future.

Find out more about the different uses of chlorine. What are the benefits of using it? What are the disadvantages of using it? Comment on your findings.



PHOTOCOPY

When shopping, read the labels of household cleaning products carefully - look out for:

PHOSPHATES:

These are found in shampoos, detergents and laundry powders.



PERFUMES:



OILS:

This includes any petroleum based products.



Some important information about the chemicals:

Phosphates act like fertiliser. They pass through the sewage treatment works into the rivers and sea. They cause the algae in the water to grow rapidly, sometimes resulting in an algal bloom.

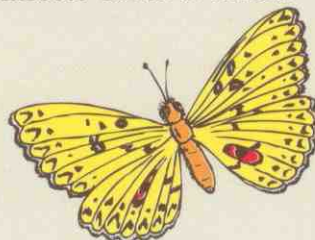
Many perfumes pass through the sewage treatment works.

Five litres of oil on water can spread over an area twice the size of a rugby field!

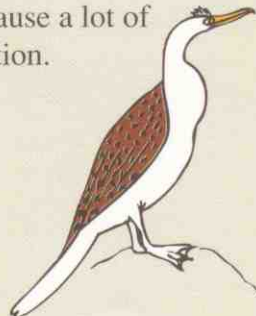
The impact of the chemicals on the environment:

The algae uses up most of the oxygen in the water, resulting in the death of other water-living (aquatic) plants and animals. This problem increases when the algae die off as even more oxygen is used in the process of decomposition.

Some perfumes are known to interfere with insects' sense of smell.



If it reaches the river or the seas, even a little oil can cause a lot of pollution.



For You To Do:

See activities linked to the infosheet 'Washing Powders and Dead Fish'.



For fun, find out how insects smell and for what purposes they use this sense.

Do a short project on the effects of oil pollution on the natural environment (plants and animals). Look at both river systems and the sea.



HOME-MADE ENVIRO-FRIENDLY PRODUCTS

Most of our cleaning products get washed away with our **sewage**. We are not always aware of the harmful chemicals in these products. Many pass straight through the sewage treatment works and have a bad effect on the plants and animals in the rivers and sea. One of the ways to reduce the number of chemicals that we use is to shop for Environment-friendly products. Another way is to try out the following home-made ideas. Ask learners to experiment with these and to comment on how they work. The activity sheet 'Chemicals and Careful Consumers' may inspire learners to develop their own alternatives: Add any new ideas to the list.



Furniture Polish
Mix 1 tablespoon of vinegar with 3 tablespoons of olive oil.

Insect Repellent
Plant lemon grass, garlic or lavender. For ants, sprinkle their route with baby powder or rub with lemon juice.

All-purpose Cleaner
Mix $\frac{1}{2}$ cup white vinegar,
 $\frac{1}{4}$ cup bicarbonate of soda
8 cups water



Mirror & Glass cleaner
Mix vinegar and water. Use crumpled newspaper to shine.



Washing clothes

To Bleach Mix 1 cup of lemon juice with $\frac{1}{2}$ bucket of water. Soak the clothes before washing.

To Clean For a 5kg load, grate $\frac{1}{2}$ cup of pure soap.

To Brighten Add 2 tablespoons of bicarbonate of soda or sodium bicarbonate.

To Soften Use $\frac{1}{4}$ cup of vinegar in rinsing water.

Drain Cleaner

Pour hot water into drain followed by half a cup washing soda (sodium bicarb). Wait for 1 minute and then pour more hot water.

If badly clogged, use a quarter of a cup vinegar and cover tightly for 1 minute. Then flush with boiling water.

Disinfectant

Dissolve 1 tablespoon of borax in half a litre of hot water.

Air Freshener

Make your own using rose petals, peppermints or cloves.

HOW THEY HELP:

BICARBONATE OF SODA: cleans, deodorises, softens water, cuts grease

BORAX: cleans, deodorises, disinfects, softens water

WASHING SODA: cuts grease, removes stains, disinfects

WHITE VINEGAR: cuts grease, freshens

HOT WATER: cuts grease

ALWAYS
HANDLE
CLEANING
PRODUCTS WITH
CARE!
KEEP OUT OF
REACH OF
CHILDREN

