8 Changes that bring danger

Some changes are dramatic. You should always read the label on chemicals to prevent accidents.

We use **CHEMICALS** around the home every day. To do their job properly, some chemicals have to work very hard and are very strong. Here are just two examples of chemicals which can give unexpected and dangerous results if used improperly.

DANGER Caustic soda 'eats' (dissolves) grease, which means it could also dissolve your skin. This is why the bottle says that users should wear gloves. It also gives off dangerous fumes. So the bottle tells you not to breathe the fumes. And it dissolves aluminium, which is why the bottle warns you not to put it near things made of aluminium.

▶▼ **(Picture 1) Caustic soda crystals (right) for use in drains; caustic soda used on oven cleaning pads (below). Notice that gloves are being used to protect the skin.**

Caustic soda

Caustic soda is a chemical sold for cleaning ovens and drains by dissolving grease (Picture 1). This is an irreversible change. Caustic soda is far too powerful to use ordinarily inside the home. Here we show you just why you must treat this chemical with respect.

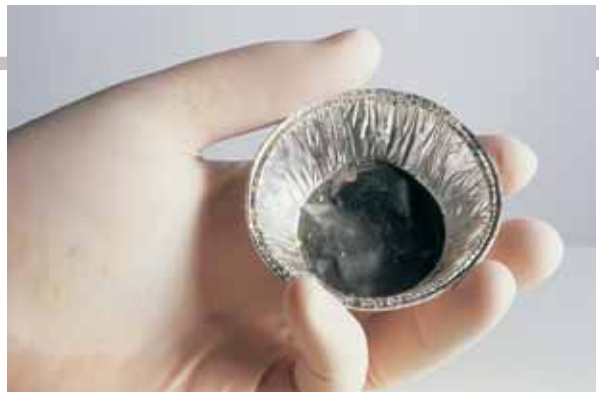
Caustic soda and water

To begin any reaction, caustic soda must be added to water. When the crystals are added to water, they **DISSOLVE** and give out enormous amounts of heat and an unpleasant gas. The hot liquid then dissolves the grease. After a while the dissolved material can be washed away.

Caustic soda and aluminium

Aluminium is a metal that is used to make, among other things, drink cans, cooking pans and cake holders. In normal use, no changes take place when aluminium is used to hold liquids.

However, this is what happens when caustic soda is poured into an aluminium cake holder (Picture 2). First the liquid begins to fizz (Picture 3). As you have seen before, fizzing means that two substances are combining and giving off a gas.



◀ (Picture 2) An aluminium cake holder before caustic soda is poured into it.

▼ (Picture 3) The fizzing that occurs when caustic soda is poured into the holder.

NOTE The demonstration shown was done by a chemistry teacher using safety gloves and eye protection, in the safety of a laboratory in a secondary school. It is here to show the dangers of misusing chemicals. This demonstration must never be done at home.

The fizzing is so violent that it hides what is happening. But when the fizzing stops, it is clear that the caustic soda has eaten its way right through the aluminium holder (Picture 4). The whole bottom has gone.

Bleach

We use bleach to clean our toilets and get rid of germs. Bleach is quite safe if used properly. But bleach combines with any kind of tissue, which is why it is always best to use bleach with household gloves – so there is no risk of spilling it onto the skin – and make sure it doesn't drip onto the carpet and other fabrics.

Slowing reactions with water

If a dangerous chemical does spill onto your skin, remember that chemicals are less active when they are **DILUTED**. This is why accidental spillages should be diluted with lots of water.

▼ (Picture 4) Within a few seconds the bottom of the holder has been eaten away.

Summary

- Some substances combine in a dangerous way. This is why it is vital to read the label before using any chemical.
- Some reactions give off poisonous fumes.