Glass

Fact sheet

Did you know?

- Pure glass can be recycled indefinitely.
- Making glass from recycled material saves 74 per cent of the energy necessary to make new glass.
- Using recycled materials for glass production saves energy and raw materials.
- Each tonne of cullet (crushed glass) saves 1.1 tonnes of raw materials.
- To make new glass bottles, the recycling manufacturer needs the glass to be more than 60 millimetres in size. The undersized glass goes to landfill.

About glass

Glass in one of the oldest and most useful materials made by humans. It was discovered more than 5,000 years ago by the Phoenicians. For 2,000 years, hand-blowing glass was the principal way of making glass bottles. In the last hundred years mechanised glass-blowing techniques have revolutionised the production of glass containers, enabling bottles to be produced quickly and cheaply.

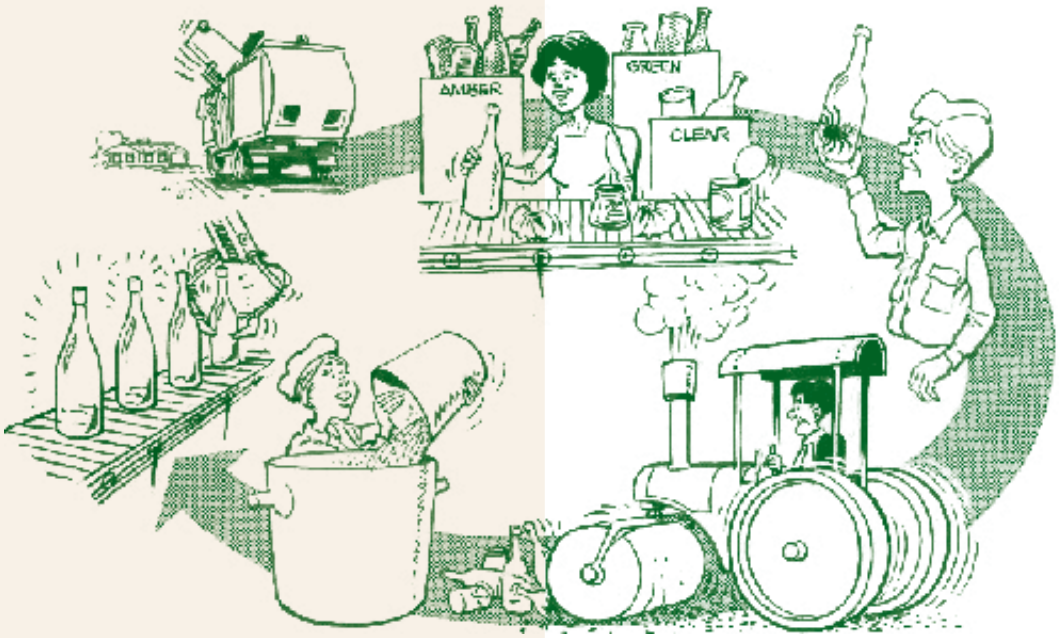
Glass is made from sand (to provide silica), soda ash (to reduce melting point) and limestone (to increase hardness). A mixture of these ingredients, called a batch, is fed continuously into furnaces where it melts at approximately 1,500 degrees Celcius. The molten glass is then conveyed to moulding machines where globules of glass are dropped into moulds. Air is blown into the hot globules to form bottles or jars, which are then slowly cooled until ready for filling.

Recycling glass in WA

Glass is not reprocessed locally in Western Australia. Since 2003, all glass from the material recovery facilities (MRFs) and commercial recyclers has been transported by freight train to ACI Glass in South Australia for reprocessing.

Once at ACI Glass in South Australia, the glass is crushed into cullet, melted in a high-temperature furnace, blended with virgin material for additional strength and remolded into glass containers. Most glass currently consumed in Australia is made from post-consumer glass. Glass can be made with up to 70 per cent recycled material without any loss of quality.

There are opportunities for increased recycling of glass through the establishment of local Western Australian markets for reprocessed glass. Some possible markets include using glass as an abrasive, in water filtration and incorporation into bricks, tiles and aggregates. Glass is also an excellent insulator and could be incorporated in household insulation systems.



Glass recycling process

Being Waste Wise with glass

To conserve the raw material needed to make glass, to save energy and to reduce the amount of waste going to landfill, it is important to be Waste Wise with glass. This can be done by following the 'reduce, reuse, recycle' philosophy.

Reduce

Reduce waste by selecting products with the least amount of packaging material. You can do this by:

- selecting the most appropriate size container for your use. This can reduce the amount of glass you use. For example a 1kg tomato sauce bottle contains less glass than two 500g bottles of tomato sauce
- choosing reusable glasses for your drinks instead of bottled drinks when eating out.

Reuse

Glass containers and jars can be used to store a variety of household goods. Glass storage containers can be reused to:

- store kitchen products such as jams, pickles and sugar
- store other drinks such as cold water or cordial
- store nuts, bolts and nails in the shed
- add to collections used by community groups, craft groups and schools.

Recycle

Recycled glass is used to make new glass containers and road base and for sandblasting. Glass can be returned for recycling in most kerbside collections or to bottle bins in public places. Types of glass that can be recycled include all clear, green, amber and brown glass bottles such as soft drink, wine, beer and all glass jars or bottles containing food.

Usually, the following cannot go into recycling bins: broken glass, opaque glass, heat-resistant glass such as Pyrex, ceramic items (plates, cups and saucers) and light globes. It is important to check with your local council to find out what can and cannot go in your recycling bin.

The recycling process

1. Glass is collected from kerbside collections and sorted according to colour at the recycling depot – usually only clear, amber, brown and green glass can be recycled.
2. The glass is taken to a factory called a 'beneficiation plant' where all of the contaminants are removed.
3. The glass is finely crushed into 'cullet'.
4. Some of the cullet and some raw materials are used to make new glass. Sand, soda ash and limestone are heated together in a furnace where it is melted into new glass.
5. The molten glass is moulded into new bottles and jars.

Sources

APC Environmental Management, 2006, *Market Development Study Used Glass*, A Prince Consulting.

New South Wales Benefits of Recycling Calculator, www.environment.nsw.gov.au/warr/BenefitRecycling.htm

The Australian Bureau of Statistics, 1301.0 – Year Book Australia, www.abs.gov.au/AUSSTATS/ABS@.NSF/a9ca4374ed453c6bca2570dd007ce0a4/501F93E63FF1B6C5CA2573D200106169?opendocument

Websites

www.visy.com.au

www.glassworks.org

www.glassworks.org/kidsnet

www.cleanup.org.au/au/LivingGreener/recycling

www.kesab.asn.au/uploads/File/Fact%20Sheets%20-%20Glass.htm

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