



# WASHING AND STEAM STERILISING OF BOTTLES IN SMALL FOOD PROCESSING PLANTS

It is essential that all glass containers used for foods are clean and in good condition. Many small food processors face additional problems as they often rely, at least in part, on recycled bottles or jars. The following suggest some possible solutions to overcome bottle treatment problems.

All glass, whether new or recycled, must be treated as dirty and considered unsuitable for packaging unless cleaned. Recycled containers must be treated with great suspicion as they could have been used for storing unpleasant materials. It is recommended that all recycled containers are rigorously inspected and rejected if there is any doubt as to their previous use.

Bottles should be washed, if possible, outside the general production unit as glass splinters from the inevitable breakages should be kept as remote from production as possible.

If labels need to be removed, overnight soaking in plastic tubs full of water will prove useful.

Washing can be carried out in a large concrete sink lined with rubber (e.g. car mats) to reduce breakages. The actual cleaning can be done with nylon bottle brushes and detergent. Rotating brushes with treated steel or bronze bristles are available and are comparatively cheap, see Figure 1.

A very good small machine, Figure 2, incorporates both a rotating brush and pump. By rotating the handle the brush revolves and water is pumped through its head, finally draining away through a tube to the drain.

The total removal of detergent bubbles can be very tiresome, involving repeated filling and emptying. A simple multi-head spray system will solve this problem, see Figure 3.

Once clean, washed glassware should pass as soon as possible to the packing area. It should be kept inverted in boxes to prevent dust and foreign bodies falling in through the necks.



Figure 1: Rotating brushes with treated steel or bronze bristles

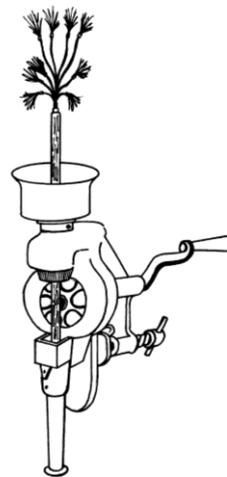


Figure 2: A small machine

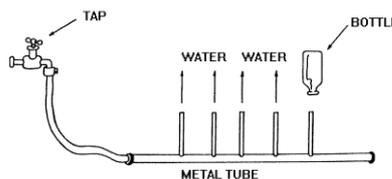


Figure 3: A simple multi-head spray system

technical brief

**Bottle sterilisation**

It is well worth considering the steam sterilisation of bottles as a final precaution prior to filling. This is particularly true if a hot filling system is to be used. Glass sometimes contains flaws and the hot filling of a cold container can cause it to shatter. This results in splinters getting in the product and represents a total loss of product.

A simple bottle steamer can easily be made by a tinsmith from copper or brass sheet, see Figure 4. It should be noted that the vertical safety tube is absolutely essential. In use, the washed bottle is inverted over the steam spigot for 15 to 30 seconds until steam emerges from its neck. Obviously, the use of protective gloves and tongs will be necessary to handle the hot glassware. It is also strongly recommended that the operator carrying out the steaming should be required to wear safety goggles as occasionally there will be breakages. Additionally, some form of simple screen between the bottle steaming point and the filling point is recommended.

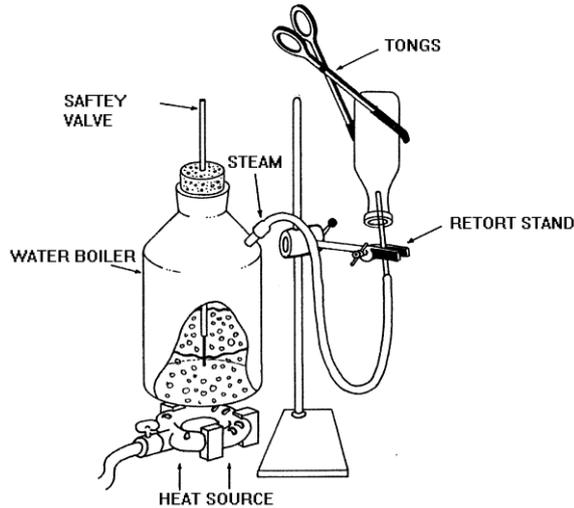


Figure 4: A simple bottle steamer

**Equipment suppliers**

**Bottle Washing Equipment**

Gardners Corporation  
 6 Doctors Lane  
 Near Gole Market  
 P. O. Box 299  
 New Delhi – 110-001  
 India  
 Tel: +91 (0)11 2334 4287 / 2336 3640  
 Fax: +91 (0)11 2684 1886

Techno Equipments  
 Saraswati Sadan  
 1<sup>st</sup> Floor  
 31 Parekh Street  
 Mumbai – 400 004  
 India  
 Tel: +91 (0)22 2385 1258

Eastend Engineering Company  
 173/1/ Gopal Lal Tagore Road  
 Baranagar  
 Calcutta 700 036  
 India  
 Tel: +91 (0)33 2577 6324  
 Fax: +91 (0)33 2556 6710/160

**Useful websites**

Search database of packaging product suppliers  
<http://www.packagingindia.com>

technical brief

**Further Reading**

[\*Appropriate Food Packaging\*](#) by Peter Fellows & Barry Axtell, ILO/TOOL 1993

*Packaging* UNIFEM 1996

[\*Small-scale Food Processing: A guide to appropriate equipment\*](#), Edited by Peter Fellows & Ann Hampton, Practical Action Publishing/CTA 1992

[\*Food safety and hygiene\*](#) a selection of Practical Action Technical Briefs

[\*Packaging\*](#) a selection of Practical Action Technical Briefs

Practical Action  
The Schumacher Centre  
Bourton-on-Dunsmore  
Rugby, Warwickshire, CV23 9QZ  
United Kingdom  
Tel: +44 (0)1926 634400  
Fax: +44 (0)1926 634401  
E-mail: [inforserv@practicalaction.org.uk](mailto:inforserv@practicalaction.org.uk)  
Website: <http://practicalaction.org/practicalanswers/>

Practical Action is a development charity with a difference. We know the simplest ideas can have the most profound, life-changing effect on poor people across the world. For over 40 years, we have been working closely with some of the world's poorest people - using simple technology to fight poverty and transform their lives for the better. We currently work in 15 countries in Africa, South Asia and Latin America.

# technical brief