

INTRODUCTORY TECHNICAL SHEET

1/ Glues used on plastic bottles

(Source: Syndicat des Fabricants de Colles et Adhésifs
– French glue and adhesives manufacturers federation)

Two main groups of glue are used:

- Liquid aqueous glues
- Solid hotmelt glues

Composition

- o As a mixture of natural base and synthetic base, or
- o Completely synthetic.

With variable characteristics:

- o Insoluble in hot or cold water, neutral or alkaline environment.
- o Soluble in hot or cold water, neutral or alkaline environment.
- o Dispersible in hot or cold water, alkaline environment.

Factors influencing qualitative and quantitative choice of glues:

a/ End use

The end use influences the required hold, e.g. hold in bathroom, refrigeration, etc.

Consequently, the glue formula may evolve according to hold in high or low temperatures or in damp conditions.

Glues must be very strong for the labelling of hazardous or semi-hazardous substances as labels contain important information for users.

b/ Legislation

The components used when the base packaging is for food use must comply with regulations (DGCCRF fascicule 1227, FDA 175.105, etc.).

c/ Packing techniques

The packaging and the type of label determine the line (shape of bottle, hot or cold filling, etc.)

The design of the line determines the glue coating method and, consequently, whether it is in liquid or solid form.

d/ Shape and kind of label

The glues used for wraparound labels are mostly hotmelt. Partial labels mainly use aqueous glues.

More information on www.fipec.org/sfca (in French)

2/ Glues and recyclability – Generalities

The key criteria in recycling plastic bottles are:

- Suitability to compliance with decree 98-638
- Nature and characteristics of glues
- Quantity

In the bottle reclaiming process, bottles are crushed into flake then washed.

The presence of glue on flake is a primordial problem in recycling as it leads to excess costs in both economic and environmental terms (depending on nature of bottles: use of detergents, high washing temperature, hot rinsing, need for pre-washing).

3/ Studies carried out on glue behaviour

Two test procedures have been defined to measure glue washability.

Principle:

A glue's washability is studied in a laboratory by reproducing conditions close to the industrial context (Solution at 80°C, pH = 12 - 14, agitation washing for 15 minutes). Tests are conducted either directly on flake coated with the glue to be tested (washability test) or on flake coated with glue and covered with a label (recyclability test).

These procedures are available on request from COTREP for any glue manufacturer that wishes to study the impact on recycling of a product intended for gluing labels on household plastic bottles.

These tests will result in general and/or technical notices.