UNIT DOSE
A Sustainability Step for Fabrics Liquids
A SUSTAINABILITY STEP FOR FABRICS LIQUIDS
CAPSULES – UNIT DOSE

Product innovation has been one of the major influences in reducing the environmental impact of laundry detergent. Sustainable consumption of detergents has been promoted by linking it to other benefits which consumers find more important. Unit dose can do that by:

• Offering the consumer “just add two” convenience.
• Reducing usage by avoiding “that little bit extra”.

Fabrics washing tablets, first widely introduced by Unilever, do this and the sector has shown steady growth within Western Europe as all major brands have introduced tablets.

Tablets have already produced an Industry environmental saving of over 250,000 tonnes of product per year.

Unit dose capsules now offer this same win-win combination in liquids form. Although liquids have a much smaller market share than solid detergents (powders plus tablets) capsules will now enable consumers to wash more sustainably with liquids too.
Capsule users typically dose 50g of product. Thus capsules provide a reduction in product usage compared with habits dosage for other formats in almost all countries.

If liquids unit dose achieves the same sector penetration as tablets have, the Industry will reduce environmental loading by a further 50,000 tonnes of product per annum.

**DETERGENT CONSUMPTION**

**THIRTY YEARS AGO**
- Washing used twice as much water and more than three times as much detergent as it does today.
- We soaked 20% of wash-loads, compared with 2% now.
- The average wash temperature was 65°C, now it is 45°C.
- 4 out of 10 washes were boil washed; now it’s 1 in 10.

**LIFE CYCLE ASSESSMENT**

As with most detergent products, the main impact of liquids is in the use phase and results from the energy needed to heat water. The detergent industry and machine manufacturers are working together to reduce this impact. More sustainable consumption means encouraging consumers to use the correct (usually lower) product dosage, choose the correct wash cycle and not wash part loads. All of these are highlighted by the AISE’s Washright campaign.

The nutrification potential impacts the disposal stage but is reduced by lower product dosages. It is a direct result of the emission of the organic components of the product entering the sewage system after use. In the absence of sewage treatment this would feed the growth of algae and other life forms. However, this nutrient contribution is small compared to the total nutrient loading on the environment, which includes the contribution of agricultural, human and industrial waste as the most dominant forms.

*AISE: Association Internationale de la Savonnerie, de la Détégence et des Produits d’Entretien
The examination of the energy profile can provide valuable insights into environmental performance in general.

**ENVIRONMENTAL INDICATORS USED IN LCA**

**Global Warming Potential:** emissions of greenhouse gases are leading to an increased absorption of radiation emitted by the earth resulting in global warming. Contributing emissions include carbon dioxide, methane and nitrous oxide and are expressed in terms of carbon dioxide equivalence.

**Acidification Potential:** acid deposition on soil and water can lead to detrimental effects on both flora and fauna. The acidifying emissions are the oxides of sulphur and nitrogen oxides that result from combustion processes.

**Photochemical Oxidant Creation Potential:** low-level smog is formed by the reaction of nitrogen oxides and volatile organic compounds (VOCs) under the influence of UV light. Contributing emission sources include the manufacture of plastic packaging materials and the combustion of natural gas.

**Nutrification Potential:** the emission of nutrients can lead to increases in biomass production. In water, this can lead to algal blooms resulting in oxygen depletion that affects higher species such as fish. Undesirable shifts in numbers of species can also occur, resulting in a threat to biodiversity. Contributing emissions from the detergent life cycle are phosphate and biodegradable materials.

**Solid Waste:** the sum of all the sources of solid waste over the product life cycle. The primary sources are from mineral-based raw material sourcing, solid fuel combustion and packaging materials.

**Energy:** the total amount of primary fuel reserves extracted from the earth taking into account the efficiency of electricity generation and heat producing processes. This indicator is a basic measure of resource depletion but is useful because other indicators are related to energy.

**Comparison with the major laundry detergent formats in the countries where we already have capsules, shows that a shift to capsules generates improvements across several environmental performance indicators.** The figures are calculated for habits dosages for the ‘old’ formats. These results demonstrate the environmental advantage for capsules over liquids in Unilever’s lead roll out countries.

Also, capsules’ environmental position is generally better than, or at least equal to, powders and tablets.

Of course, capsules only offer liquids (bleach-free) performance levels and this level of cleaning will not be adequate for all users of heavy duty, bleach-containing powders. However, we do expect many powders users to be satisfied with the level of cleaning offered by capsules and to make the change.

**LCA COMPARISON OF UNIT DOSE CAPSULES AND OTHER FORMATS**

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* Both standard and concentrated formats
Unilever considers its use of packaging very carefully to satisfy the demands of consumers and trade customers, ensure appropriate presentation on shelf and meet the needs of national and international distribution.

Packaging is an integral part of the product and the consumers’ first point of contact with the brand. It helps protect the product from damage, contamination and deterioration during storage. It has to be aesthetically pleasing and provide marketing information. It must take into account consumer safety and provide all necessary safety instructions. In some cases, the packaging helps the consumer use the product efficiently. In short it must be safe, functional and attractive but minimise environmental impact consistent with these objectives. Achieving this balance is complex but important.

Our policy is to:

• Design packaging to do its job with the lowest practical use of materials
• Select packaging materials on technical performance evidence
• Design packaging to ease recycling and energy reclamation

Capsules are very sensitive to moisture and damage, hence they place rigorous demands on the packaging system. It is essential to maintain product quality and integrity – a single leak can cause a mess and product wastage. This is why capsules need more packaging per wash than tablets, concentrated powders and concentrated liquids (ca 20-40%). However, as capsules are concentrated, they use less packaging than standard powders and liquids (15-70%). Of course they are new products and as with any new or existing packs, we are constantly looking for opportunities to further optimise packaging weight.

In addition to ensuring the minimum amount of packaging for purpose is used, the packaging is fully recoverable. It can either be recycled or safely incinerated with energy recovery (the route depending on local conditions).

The introduction of capsules will contribute to achieving the AISE’s “COGEP” targets. The saving in chemicals per wash will approach 2% in 2001 with a similar reduction in poorly biodegradable materials of 1.8%.