

## HEALTH

Manufacturing of pharmaceuticals

Disinfectants &amp; cleaning products



## Manufacturing of pharmaceuticals



Essential medicines such as antibiotics, blood thinners and pain relievers require solvents in their manufacture. Solvents are used as the medium in which the chemical reaction takes place to make active pharmaceutical ingredients. They help separate the desired chemical products from unwanted ones, maximising drug purity. In short, solvents can be used either as part of reaction, as a carrier or for purification (re-crystallisation). As product quality requirements for this sector are amongst the most stringent of all, the purity of the solvents used, and the consistency of the impurity profile, are paramount.

Butyl acetate is used to purify penicillin by keeping impurities in the solution whilst the penicillin is selectively removed from the reaction mixture by extraction. Further purification of the penicillin is achieved through the method of crystallisation.

Glycol ethers are used as process chemicals in the production of active

pharmaceutical ingredients for contrast media that enable cancer to be detected at an early stage, contributing to saving the lives of millions of patients every year.

A large pharmaceutical production plant can use 100 kilotonnes per year of solvents. Although most of the solvents can be recycled by being recovered after the reaction and reused, a gradual deterioration in quality occurs with each reuse. Once the solvents are no longer suitable for use in pharmaceutical applications, they can be recycled through distillation processes and sold to other industries where the solvent purity is not so critical.

The administration of many essential medicines would not be possible without solvents. Sometimes a drug must be applied as an ointment, swallowed as a syrup or injected as a liquid. Solvents are uniquely able to dissolve drugs safely and effectively into these medical formulations.

EUROPEAN SOLVENTS INDUSTRY GROUP

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## Disinfectants & cleaning products



Alcohols such as Isopropyl Alcohol (IPA), ethanol or propanol are the active ingredients in disinfectants, hand gels and sprays. These solvents have played a key role in protecting health care

professionals as well as the general public during the COVID-19 pandemic and have undoubtedly helped save thousands of lives as a result.



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