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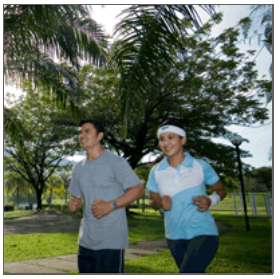
Butanediol & Derivatives



Diols and its derivative are versatile intermediates used in the chemical industry. BASF PETRONAS Chemicals, produces the following diols derivatives : 1,4-butanediol (BDO), tetrahydrofuran (THF) and gamma-butyrolactone (GBL) .

Butanediol (BDO)

BDO is widely used in various industries. Its hydrophobic and chemical resistance characteristics makes it one of the more versatile chemical intermediates in the industry. It serves as a building block in the production of polyester polyols and polyether polyols.

Tetrahydrofuran (THF)

THF is one of BDO's derivatives. Physically, it is a clear, colorless liquid with low viscosity and ether like odour. Its high volatility and extremely low freezing temperature enables it to be widely used in various industrial applications, for example, as a solvent in pharmaceuticals, and the starting block for the production of poly-tetramethyl ether-glycol (PTMEG) for fibre yarns, which lends stretchability to textiles.

Gamma-butyrolactone (GBL)

GBL is also a butanediol derivative. It is a colorless liquid with a high boiling point and low odour. GBL is soluble in alcohol and aromatic hydrocarbons, esters, ethers, ketones and water. Being a chemical intermediate, it is used in a wide range of production processes from agriculture to pharmaceuticals

Market Applications and Industries

BDO is mainly used in the manufacturing of engineering plastics, i.e. polybutylene terephthalate (PBT). It is also used in the application of polyurethane in the leather industry. In certain applications, it is also used to manufacture hot melt adhesive.

THF serves as a solvent in many applications. It is widely used in active pharmaceutical ingredients (API), to blend with other solvents in PVC or Polyurethane industries. In certain applications, it is also used in the production of adhesive for PVC. The main downstream application for THF is in the production Spandex, the fibre yarns that imparts stretchability to textiles & garments.

The major end use of GBL is in the production of NMP and 2-pyrrolidone. GBL is also a good cleaning agent used in industrial cleaning products, which includes paint stripper, de inking and adhesive remover. It is also applied as a chemical intermediate in agrichemical pesticides, herbicides, pharmaceuticals and dyes.

Category	Product Range	End Applications
Butanediol & Derivatives	Butanediol	Shoe soles, laminates (artificial leather), adhesive; Housing for electrical motors and electronic components: motors for power windows, antennas, ABS control; Ignition systems - distributor caps, bodies, and rotors; Connectors for telecommunications, electronic data processing, television equipment; Parts for medical and optical instruments; Insulators; Pump casing and rotors, large water metres, valve bodies, housing and functional parts for the distribution and metering of some corrosive fluids; Sliding parts in machinery, magnetic recording equipment, record players, cameras, copying equipment, and sewing machines (running at high speed).
	Tetrahydrofuran	Sports attire; Artificial leather, magnetic tapes, cellophane; PVC adhesive for rigid PVC; Grignard syntheses or lithium aluminium hydride reductions; production of organometallic compounds;

		Active pharmaceutical ingredients
	Gamma Butyrolactone	Pesticides, herbicides, plant growth regulators; Production of vitamins & pharmaceuticals; Photochemical etching, electrolytes of small batteries or capacitors; Viscosity modifiers in polyurethanes; Surface etching of metal coated plastics; Organic paint disbursement for water soluble inks; pH regulators in the dyeing of wool and polyamide fibres; Foundry chemistry as a catalyst during curing, curing agents in many coating systems based on urethanes and amides.