Sponge, Synthetic Encyclopedia Article

Sponge, Synthetic

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Sponge, Synthetic

Synthetic sponges are polymer foams. Depending on the intended use, the foam may be *open* or *closed-cell* . The most familiar sponge is the open cell which readily absorbs liquid through capillary action. Closed-cell foams do not readily absorb liquids and are used in life preservers and buoys.

The sponge is made from a polymer and a chemical agent that introduces cells, or bubbles, into the polymer. The polymers used in sponges may be cellulose acetate or one of the phenolic chemicals; both can absorb over ten percent of their volume in water. Cellulose acetates are cheaper and are used more often.

Open-celled foams are made during free expansion, that is, with no external pressure so that the cells may reach their maximum size, while closed-cell foams are made while pressure is applied, increasing their density. Inorganic salts which give off carbon dioxide are used to form the cells in the polymer; the gas then dissipates.