

How is MSM made?

All MSM is formed by catalytic reaction of hydrogen peroxide with DMSO. All DMSO is formed by reaction of nitrogen tetroxide and oxygen with DMS. The oxygen atoms for these reactions come from the atmosphere, the same source used in nature.

DMS is made commercially by two competing processes. The most common method, in simplified terms, is reaction of sulfur with natural gas (methane). Methyl alcohol made from natural gas is combined with sulfur in the form of hydrogen sulfide or carbon disulfide in a vapor phase catalytic reaction to form DMS and methylmercaptan (MM). MM is primarily used to make the amino acid methionine, another dietary supplement. DMS is sold for various industrial uses or converted to DMSO. This process is generally favored due to high conversion yield, low energy consumption and its independence from a paper mill waste stream.

The alternate method combines sulfur with paper mill pulping liquids to make DMS. Sulfur (usually obtained as a by-product from oil refinery processing required to make clean burning fossil fuels) is added to black liquor and heated to about 460°F under high pressure. Crude DMS is stripped from the liquor after about an hour. This process is very energy intensive and limited by low yield and pulping capacity. The black liquor is burned in a recovery boiler to dispose of the remaining organic material from the wood and to reclaim the inorganic chemicals for recycle to make fresh pulping liquor. Crude DMS is purified by a series of extraction and distillation steps to make a product for sale or conversion to DMSO.

Many manufacturers of MSM have established facilities and methods for processing. Due to the volatility of sulfur compounds, a single purpose facility can prevent any cross-contamination that might occur if other sulfur-containing products were produced at the same location. Distillation processes prevent contamination including heavy metals and residual DMSO. Low moisture content helps prevent microbiological contamination and increases stability and shelf life.

In summary, nature does make MSM. However, the amount of MSM found in nature in cells as a source is on a scale so small that the only way to produce commercial quantities for human or veterinarian use is to rely on the manufacturing methods developed by chemical engineers. The process nature uses to produce MSM is rather similar to how humans produce it commercially. But MSM is not "natural," rather it is a synthetic product. The confusion in qualifying the source of MSM as "natural" or "synthetic" comes from the fact that MSM is identical in structure whether it comes from the factory or is found in nature.

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