

If you're using pTSA...

...get better performance with

The Gentle Outperformer

MSA is the Purest Cost-Effective Proton Commercially Available:

- Non-oxidizing, high purity, efficient catalyst – yielding low color, high quality products
- Completely soluble in water, forming solutions with high equivalent conductance
- High solubility for alkaline earth and heavy metals
- Readily biodegradable
- A strong acid with an advantaged toxicity and ecotoxicity profile
- Lower corrosion than other strong acids
- Lower cost of use

If you're using pTSA, you should know that:

- MSA is a very pure acid, with much lower sulfuric acid content than pTSA. The sulfonation process used to manufacture pTSA also produces significant levels of sulfuric acid. The sulfuric acid present can affect product quality by causing problematic side reactions such as oxidation and dehydration. It can also reduce productivity by forming surfactants that increase the rag layer.
- MSA imparts less color to products than pTSA.
- MSA is a low viscosity liquid with a melting point of -60°C . pTSA is available as a slurry (Gardener Color of 4) or as a solid crystal.



- MSA and its sodium salt are more water-soluble than pTSA and its sodium salt. This makes it easier to wash MSA completely out of a solvent/ reaction media.
- Unlike PTSA, MSA is readily biodegradable.
- MSA provides higher rates of reaction when used as an esterification catalyst. This also can allow lower reaction temperatures for equivalent rates.
- MSA can be used at higher temperatures than pTSA. The onset of pTSA decomposition is at 162°C vs 180°C for MSA. Decomposition of pTSA produces sulfonating agents and toluene.
- Aqueous solutions of MSA are less corrosive than equivalent pTSA solutions, especially at elevated temperatures.
- MSA is highly stable to oxidation and reduction. pTSA has been shown to react with hydrogen peroxide much faster than MSA. MSA is not known to form peroxides.
- MSA's low molecular weight makes it more cost-efficient. By using MSA as a Bronstead catalyst, the non-catalytic content can be lowered by about 45%. This means less weight added by the catalyst, and fewer pounds of waste contributed by it.
- MSA contains no aromatic hydrocarbons. PTSA may contain phenol or toluene.

Where can I use MSA instead of pTSA?

- Esterifications: acrylates, acetates, phthalates, maleates, trimellitates, oleates, stearic and other fatty acids, and others
- Etherification
- Alkylations: arenes, Friedel-Crafts
- Resin Curing: phenol-formaldehyde, floral foams
- Polymerization and cross-linking
- Blocked catalyst
- Carbonylation
- Extracting metals from oils
- Metal salts
- Surface treatment



A Versatile Green Acid that's The Gentle Outperformer

As a world-scale chemicals activity and the leader in sulfonyls, Arkema brings you a world of innovation. With the use of research and production methods at the leading edge of technology and presence in international markets, a wide range of Arkema's services and solutions are at your disposal.

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BEFORE HANDLING THIS MATERIAL, READ AND UNDERSTAND THE MSDS (MATERIAL SAFETY DATA SHEET) FOR ADDITIONAL INFORMATION ON PERSONAL PROTECTIVE EQUIPMENT AND FOR SAFETY, HEALTH AND ENVIRONMENT INFORMATION.

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