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Sulfonation, sulfation, and sulfamation

Description of Technology: The invention relates to a process for sulfonating, sulfating, or sulfamating an organic compound.

Patent Listing:

1. **US Patent No.** 6,462,215**,** Issued on October 8, 2002, "Sulfonation, sulfation, and sulfamation" http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,462,215.PN.&OS=PN/6,462,215&RS=PN/6,462,215
2. **US Patent No.** 6,448,435, Issued on September 10, 2002, "Sulfonation, sulfation, and sulfamation" http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6448435.PN.&OS=PN/6448435&RS=PN/6448435

Market Potential: Sulfonation of organic compounds represents a major synthetic reaction. Sulfonations commonly use sulfuric acid and sulfur trioxide as the sulfonating agents. While sulfur trioxide presents major problems in terms of corrosivity, toxicity, and the consequences of leakage, it provides certain advantages. For example, sulfonation with sulfur trioxide can result in different and advantageous ratios of sulfonated isomers compared with the use of sulfuric acid and avoid safety problem with handling sulfuric acid.

It would be desirable to develop new sulfur trioxide complexes in which the sorbent is substantially insoluble to facilitate product isolation, which sulfonate aromatic compounds in a regiospecific manner, and which provide a more active solid sulfonating, sulfating, and sulfamating agent effective in a wider range of sulfonation, sulfation, and sulfamation processes.

An advantage of the invention is that it can be used industrially for the manufacture of detergents, dye intermediates, and sulfonated oils. For example, detergents can be made by using the SO.sub.3 complexes disclosed below for either sulfating alcohols or sulfonating polyalkyl benzenes. Another advantage is that the use of the SO.sub.3 complexes provides substantial safety and product isolation advantages over the prior art.

Benefits:

- Sorbent is substantially insoluble
- More active solid sulfonating, sulfating, and sulfamating agent

Applications:

- Detergents, dye intermediates, and sulfonated oils

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