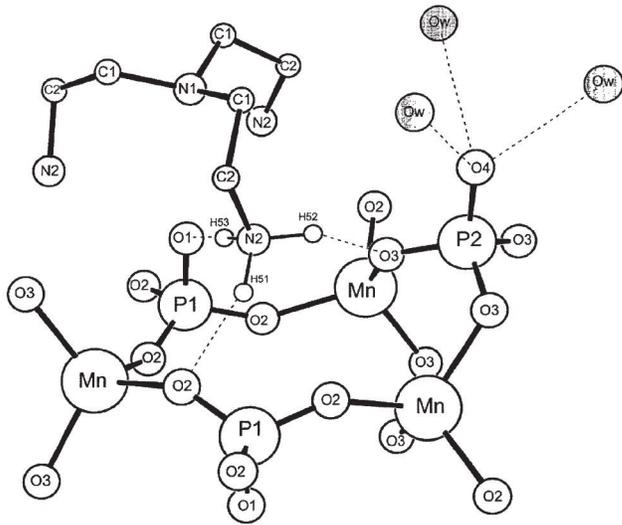




# Separation of Polar Molecules



## TECHNOLOGY SUMMARY

Traditionally, organic polar substance separations, especially chemically related polar substance separations, have been very difficult to achieve. Sandia has developed a novel separations media using a crystalline manganese phosphate composition which can be used to separate multiple organic polar substances based the degree of branching, location of the polar group, or the length of the carbon chain.

## BENEFITS

### Multiple Types of Separations

Separation are achieved according to degree of branching/linearity, location of polar group, etc.

### Wide Temperature & pH Range

Operates between pH 3.5-9.5 in aqueous solutions and temperatures up to 225C for inert atmospheres

### Easily Facilitated Separations

Separations are induced simply through contact with the separation media even at room temperature

## INTELLECTUAL PROPERTY

US PATENT # 6767469

US PATENT # 6777568

## POTENTIAL MARKET APPLICATIONS

### Pharmaceutical Processing

The extremely high purities required to meet FDA standards for drugs are often very difficult to achieve. Separation efficiency becomes especially important for drugs for which one or more isomers of a polar compound are poisonous. This technology would allow for efficient separations, even purifying mixtures with less than 1 wt% impurities.

### Ultra High Purity Chemical Processing

As with pharmaceuticals, many polar compounds are often difficult to separate. For chemicals that require a very high purity, this technology could allow for much faster, more reliable, and re-producible separations.

### Wastewater treatment

Certain polar, organic compounds can be extremely difficult to remove during waste water treatment. This technology could allow for a decrease in contaminants present after treatment, making it easier and cheaper to meet EPA requirements.

## TECHNOLOGY READINESS LEVEL

Sandia estimates this technology at approximately TRL 3. Concepts have been experimentally demonstrated.

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Sandia National Laboratories

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