



ENPROVE™
An EnTerra Product



Trust the experts to develop the
environmental solutions you need.

Trust FMC.

FMC



Trust the experts in air quality control.

At FMC, we've been providing sodium and peroxide-based chemical reagents for environmental applications in a wide range of industries for over sixty years. In fact, we are the world's largest producer of natural soda ash and the leading producer of hydrogen peroxide.

We're proud to continue our commitment with our new brand of EnTerra™ products, the first of which is EnProve™. Designed for the industrial and utility markets, EnProve sodium-based chemical reagents remove SO₂ and SO₃ from stack gases in both dry and wet applications.

- » **EnProve_{SC}** – Sodium sesquicarbonate product used in dry injection processes for both SO₂ and SO₃ abatement.
- » **EnProve_{DA}** – Standard soda ash product used in wet and dry injection processes for both SO₂ and SO₃ abatement.
- » **EnProve_{LA}** – High solubility soda ash product used in wet injection processes for SO₃ abatement.
- » **EnProve_{BC}** – Sodium bicarbonate product used in dry injection processes primarily for SO₂ abatement.

At FMC, we work with leading equipment manufacturers to develop solutions for both dry and wet injection processes to ensure that we meet the needs of individual plants.

Today's environmental challenges are tougher than ever. We have initiated an aggressive approach to address market needs with a range of products that meet your challenges head on. We are committed to continuing to develop products and technology that meet these challenges and those the future will bring.

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EnProve_{SC}

EnProve_{SC} sodium sesquicarbonate is designed for use in dry injection processes.

In field tests, EnProve_{SC} was shown to offer the same reactivity as other refined trona products, while offering advantages, including consistent quality, enhanced handling and pulverizing characteristics, as well as no insolubles. Together with reduced material requirements, these advantages result in lower transportation and disposal costs, while providing consistent SO₂ and SO₃ removal. Removing SO₃ results in reduced corrosion of back-end equipment including the air heater, baghouse and ductwork.

Advantages include:

- » **Maximum flowability** – EnProve_{SC} is thoroughly dried in the manufacturing process and is shipped in large particles, allowing for maximum flowability and decreased chance for agglomeration.
- » **Easy to mill** – Because of its unique particle shape and crystalline structure, EnProve_{SC} is relatively easy to grind and mill to the final particle size required for dry injection.
- » **Reduced freight costs** – Since EnProve_{SC} is shipped in a pure state, freight costs associated with shipping trona ore insolubles are eliminated.

EnProve_{BC}

Designed for use in dry injection processes in industrial environments, EnProve_{BC} is a sodium bicarbonate product used primarily for SO₂ removal.

Benefits include:

- » **Reduced costs** – when compared to other reagents, EnProve_{BC} uses up to 45% less product, creating a more cost-effective alternative.
- » **Reduced equipment corrosion** – Removing SO₃ results in reduced corrosion of back-end equipment including the air heater, baghouse and ductwork.

EnProve_{LA} & EnProve_{DA}

Designed for use in industrial and utility environments, EnProve_{LA} and EnProve_{DA} are soda ash reagent products for SO_x abatement.

In field tests*, EnProve_{LA} has been shown to offer multiple advantages. Among various reagents tested in wet injection applications, the highly soluble EnProve_{LA} has proven to be the most cost effective option on the market because of the significantly reduced material requirements. Additionally, when injected upstream of air heaters, EnProve_{LA} has demonstrated an SO₃ removal rate of up to 99% and no less than 95%.

Benefits include:

- » **Reduced equipment corrosion** – Removing SO₃ results in reduced corrosion of back-end equipment including the air heater, baghouse and ductwork.
- » **Enhanced pollutant removal** – Increased removal of NO_x and Hg
- » **Increased safety** – In all cases, visible sulfuric acid plume opacity was eliminated, along with the associated health risks.

*Results obtained via testing of SBS Injection™ technology and provided by URS.

Other EnTerra Products:



Hydrogen peroxide

PermeOx® Plus

SO₃ – What does it mean for our environment?

The increased use of Selective Catalytic Reduction (SCR) systems, which are designed to control NO_x, coupled with the increased use of high sulfur coals has resulted in significant increases in the release of SO₃ in coal-fired boiler flue gases.

As SO₃ levels increase, a host of potential issues are presented:

- » Visible sulfuric acid opacity is increased from the stacks
- » Increased corrosion of “back end” equipment
- » Significant reductions in energy efficiency
- » Reduction in SCR performance

Why act now to remove SO₃?

When SO₃ is present, the retention of mercury with the flyash is decreased. If the SO₃ is removed, the flyash will retain more mercury and improve the performance of the activated carbon technology. By addressing these issues now, companies can achieve the following benefits:

- » Reduction in equipment corrosion
- » Enhanced removal of NO_x and Hg removal
- » Eliminate health risks associated with plume opacity
- » Alter perceptions that all coal burning energy is environmentally damaging



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SO₂ On the Rise

Coal has long been a reliable energy source for Americans, and experts predict that its use will only increase in future years. As a result, SO₂ emissions are on the rise, and have recently become the target of increased government regulations in an effort to protect the environment. Over the course of the next decade, the restrictions will become more and more stringent.

These regulations and those to come will result in the need to further decrease SO₂ emissions. FMC's line of EnProve™ products are designed for maximum performance and removal rates, allowing you to be proactive and protect your investment.



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