Phosphate Salts From Innophos Mexicana

Coatzacoalcos Site
The Coatzacoalcos Site

The Coatzacoalcos site in the state of Veracruz, Mexico, has six production units plus auxiliary service areas. Our infrastructure includes electricity generation, ample storage capacity for raw materials and finished products as well as maintenance shops.

The Coatzacoalcos Sulfuric acid and Phosphoric acid plants began operations in 1969 as Fertilizantes Fosfatados Mexicanos (FFM). FFM merged with Guanos y Fertilizantes de Mexico (Guanomex) to form the Mexican government owned Fertimex in 1977. The technical grade Phosphoric acid (PWA) plant, was started up in 1971. In 1992, Troy Industrias acquired the facility, and in 1994 formed a joint venture with Albright & Wilson (A&W Troy). In 1998 Albright & Wilson purchased the Troy Industrias interest and on March 14th, 2000 Rhodia acquired Albright & Wilson. The plant operated as a Rhodia facility until Innophos was created on August 16th, 2004.

The Coatzacoalcos site specializes in producing many grades of Phosphoric acid and Phosphate salts. The site consists of a series of upstream production units to ensure both competitive costs and security of supply. Sulfuric acid is produced by burning sulfur sourced locally which is then used to convert Phosphate rock into Phosphoric acid. Phosphoric acid is purified and sold or converted to derivative products (e.g. Specialty Phosphate intermediates, Complex Phosphate salts and water soluble fertilizers).

Coatzacoalcos is ideally located on the east side of Mexico, on the Gulf Coast at the southern end of the Bay of Campeche. It is situated in Mexico’s primary oil and gas producing region, approximately 230 kilometers southeast of Veracruz. The plant site covers 44 hectares in the middle of the Pemex Complejo Industrial Pajaritos, a hydrocarbon processing industrial complex that is approximately 3 km east of downtown Coatzacoalcos.

The Ortho Phosphates Salts Plant

As one of Innophos’ six plants at the site, the Orthophosphates plant (Salts plant) produces high quality crystallized technical and food grade salts and has GMP, Kosher and Halal certifications. Grades produced include food and technical Monoammonium Phosphate (MAP), Diammonium Phosphate (DAP), Monopotassium Phosphate (MKP). The Salts plant also produces Monosodium Phosphate (MSP), Disodium Phosphate (DSP), and Trisodium Phosphate (TSP). These salts have a variety of uses, including food, specialty fermentation processes, sports drinks, fertilizers, and fire retardants.

The Salts plant is the largest of its kind in the Americas for these products. Purified grade or FCC grade phosphoric acid (PWA) is reacted with ammonia, potassium hydroxide, or sodium hydroxide (depending upon the desired product) as follows:

\[
\begin{align*}
H_3PO_4 + NH_3 & \rightarrow NH_4H_2PO_4 & \text{Monoammonium Phosphate} \\
H_3PO_4 + 2NH_3 & \rightarrow (NH_4)_2HPO_4 & \text{Diammonium Phosphate} \\
H_3PO_4 + KOH & \rightarrow H_2O + KH_2PO_4 & \text{Monopotassium Phosphate} \\
H_3PO_4 + NaOH & \rightarrow H_2O + NaH_2PO_4 & \text{Monosodium Phosphate} \\
H_3PO_4 + 2NaOH & \rightarrow 2H_2O + Na_2HPO_4 & \text{Disodium Phosphate} \\
H_3PO_4 + 3NaOH & \rightarrow 3H_2O + Na_3PO_4 & \text{Trisodium Phosphate} \\
\end{align*}
\]

Products are available in 25Kg, 50lb, 1Metric ton and 2000 lb bags, consolidated in full container loads for ocean shipments or as break bulk in box trucks containers, or rail cars. Upon customer request, the MAP and DAP can also be shipped in bulk rail hopper cars.

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About Innophos

Innophos, (Nasdaq symbol IPHS), is a leading producer of specialty grade phosphate products for the Food, Pharmaceutical and Industrial market segments. Within these segments our products cover a broad range of applications including, consumer goods, water, paper and metal treatment, agriculture, textiles, and detergents. For example, specialty phosphates act as flavor enhancers in beverages, leavening agents in baked goods and cleaning agents in toothpaste. Innophos has production sites in Mexico, Canada, and the USA.
## Products and Specifications

<table>
<thead>
<tr>
<th>Ammonium Phosphates</th>
<th>CAS#/P2O5</th>
<th>pH (Typical)</th>
<th>Molecular Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>96.0%-102.0%</td>
<td>132.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>25.0% Min. (NH₄⁺)</td>
<td>132.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>52.0% Min.</td>
<td>132.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>96.0%-102.0%</td>
<td>132.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>4.6</td>
<td>115.0</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄</td>
<td>14.5% Min.</td>
<td>115.0</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄•2H₂O</td>
<td>98% Min.</td>
<td>178.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄•2H₂O</td>
<td>95% Min.</td>
<td>178.1</td>
</tr>
<tr>
<td>Diammonium Phosphate</td>
<td>(NH₄)₂HPO₄•2H₂O</td>
<td>96% Min.</td>
<td>178.1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Potassium Phosphates</th>
<th>CAS#/P2O5</th>
<th>pH (Typical)</th>
<th>Molecular Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monopotassium Phosphate</td>
<td>KH₂PO₄</td>
<td>50.5%</td>
<td>136.1</td>
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<tr>
<td>Monopotassium Phosphate</td>
<td>KH₂PO₄</td>
<td>51.9%</td>
<td>136.1</td>
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<table>
<thead>
<tr>
<th>Sodium Phosphates</th>
<th>CAS#/P2O5</th>
<th>pH (Typical)</th>
<th>Molecular Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disodium Phosphate, Anhydrous</td>
<td>Na₂HPO₄</td>
<td>50%</td>
<td>142.0</td>
</tr>
<tr>
<td>Disodium Phosphate, Anhydrous</td>
<td>Na₂HPO₄</td>
<td>50%</td>
<td>142.0</td>
</tr>
<tr>
<td>Disodium Phosphate, Dihydrate</td>
<td>Na₂HPO₄·2H₂O</td>
<td>49%</td>
<td>178.1</td>
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<tr>
<td>Monosodium Phosphate, Anhydrous</td>
<td>NaH₂PO₄</td>
<td>58.8%</td>
<td>120.1</td>
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<tr>
<td>Monosodium Phosphate, Anhydrous</td>
<td>NaH₂PO₄</td>
<td>58%</td>
<td>120.0</td>
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<tr>
<td>Trisodium Phosphate, Dodecahydrate</td>
<td>4(Na₃PO₄·12H₂O)NaOH</td>
<td>92% Min.</td>
<td>1560.4</td>
</tr>
<tr>
<td>Trisodium Phosphate, Anhydrous</td>
<td>Na₃PO₄</td>
<td>41.0%-43.4%</td>
<td>163.9</td>
</tr>
<tr>
<td>Trisodium Phosphate, Anhydrous</td>
<td>Na₃PO₄</td>
<td>18.3% Min.</td>
<td>1560.4</td>
</tr>
</tbody>
</table>

For products manufactured outside of North America, please refer to the information on the back cover or visit our website at: www.innophos.com

Technical Grade = TG
Food Chemicals Codex = FCC
NSF International = NSF
Food Grade = FG
National Formulary = NF
United States Pharmacopoeia = USP

Questions? Call Technical Assistance at +1 609 495 2495. To Place Your Order: Phone: +1 609 495 2495, Fax: +1 609 655 8704, email: spcustomerservice@innophos.com Visit our web site at www.innophos.com
Phosphate Salts From Innophos Mexicana

Mexico and Latin America
Bosque de Ciruelos 186–11º Piso,
Colonia: Bosques de las Lomas México DF
CP 11700, México
Patricia Valdés, Sales Manager
patricia.valdes@innophos.com.mx
Phone: (52) 555322 4808
Maria Luisa Ortega, Customer Service
maria.ortega@innophos.com.mx
Phone: (52) 555322 4810

USA and Canada
259 Prospect Plains Road
Cranbury, New Jersey 08512 USA
P.O. Box 8000, 08512–8000 USA
Phone: +1 609–495–2495
Fax: +1 609–860–0138
email: spcustomerservice@innophos.com

Europe, Middle East, Africa
Günter Becker
Regional Sales Manager
gunter.becker@innophos.com
Phone: +49 613 162 21033
Cell Phone: +49 151 229 13034

Asia and Oceania
Joanne Lim
Regional Sales Manager
joanne.lim@innophos.com
Phone: +65 97346235

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