Struvite scale formation is a recognizable problem where anaerobic sludge digesters are part of the solids handling treatment scheme. These crystals will deposit in digester supernatant recycle lines, especially at elbows and on the suction side of the pumps. They can accumulate on screens and dewatering equipment as well as in the filtrate/centrate pumps and lines returning this water back to the head of the plant. These scale formations cause unscheduled shutdowns, the loss of solids dewatering capacity, and increased operating costs. Chemical cleaning of the struvite scale and preventing future scale formation is the most cost effective method to eliminate unscheduled disruptions to plant dewatering operations.

**BENEFITS OF CARUS STRUVOUT**

- Eliminates serious disruptions to plant dewatering operations by preventing deposits and plugging of equipment
- Provides consistent dewatering operations: clean lines eliminate reductions in flow due to deposit build-up
- Less down time, cleaning, and replacement of sludge dewatering lines or filtrate/centrate return lines
- Eliminates scouring actions in the piping caused by breakaway deposits

**PROPERTIES AND CERTIFICATIONS**

**Description:** Clear liquid with light amber color

**Freezing Point:** Do not Freeze

**Specific Gravity:** 1.30-1.36

**pH (1% w/w):** 7.7 ± 8.7

Contains dispersants and sequesterants

**HANDLING AND STORAGE**

CARUS™ STRUVOUT dispersant and sequesterant should be handled with care. Wear proper protective equipment including goggles, face shield, apron, respirator and proper gloves when handling this product.

Protect containers from physical damage. Store in a cool, dry area in closed containers. In case of accidental release: collect spill by collecting the liquid in a pit or holding behind a dam (sand or soil). Absorb with inert media and dispose of properly. Disposal of all materials shall be in full and strict compliance with federal, state, and local regulations. Consult the SDS for additional safety information.

**SHIPPING**

CARUS STRUVOUT dispersant and sequesterant is generally considered to be safe and is not classified as hazardous according the US Department of Transportation, Canada TDG, UN, IMDG, or IATA regulations.

**COMPATIBILITY INFORMATION**

CARUS STRUVOUT dispersant and sequesterant can be stored in high-medium density polyethylene, cross-linked polyethylene, fiberglass reinforced plastic, 316 stainless steel, and glass lined/epoxy lined steel tanks. Piping materials may include schedule 80 PVC/CPVC piping, clear PVC, and white polyethylene tubing. Pump materials may include ceramic, Teflon, viton, hypalon and PVC liquid end pump materials.

Metering equipment can include diaphragm and peristaltic type metering pumps and other pumps meeting compatibility requirements.

It is not compatible with black iron, mild steel, galvanized metals, aluminum, zinc, copper, lead, brass, bronze, tin, and other base metals.
**SHIPPING CONTAINERS**

**55-gallon (611-lb) Drum**  
(UN Specification: UNIHY1.8/100) Made of high density polyethylene (HDPE). Weighs 21 lbs (9.5 kg). The net weight is 611 lbs (277 kg).

**275-gallon IBC (Intermediate Bulk Container)**  
Weighs 129 lb (58.5 kg). The net weight is 3053 lb (1385 kg). The IBC has a 2 in. butterfly valve with NPT threads in bottom sump.

**WHAT IS STRUVITE AND HOW DOES IT FORM?**

Struvite is magnesium ammonium phosphate (MgNH₄PO₄•6H₂O). It forms in the anaerobic digestion process where the ammonia and orthophosphate react with the magnesium (hardness) present in the water. This a case where more than one of the dissolved species (ammonium ion NH₄⁺ and phosphate ion PO₄³⁻) is affected by the solution pH. At pH 10.7, struvite solubility is at a minimum. In an anaerobic digester, the sludge is in contact with an atmosphere containing about 30-40% CO₂. When the sludge is exposed to air, (containing 0.3% CO₂) CO₂ will be liberated from the sludge increasing the pH, and potentially exceeding struvite solubility, resulting in crystal formation. The problem magnifies itself in the filtrate/centrate lines because the component ions are concentrated.

CARUS STRUVOUT dispersant and sequesterant is formulated to prevent scale under normal conditions. The product also contains a dispersant that will prevent scale formation under more severe conditions. CARUS STRUVOUT is effective for sludge dewatering lines and equipment as well as in filtrate/centrate lines to the head of the plant. The product is typically fed at 15-50 ppm dosages.