



Technical Bulletin Water Well Gravel Pack and Colorado Silica Sand®

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A photograph showing several large piles of silica sand and gravel. The piles are arranged in a row, with the largest pile on the right and smaller piles to its left. The sand is a light tan color, and the gravel is a darker, more uniform tan color. The background is a light gray grid pattern.

Featuring Colorado Silica Sand®
Ask for it by Name!

Well Designers around the world have come to realize that most common sands are not adequate for Water Well Gravel Pack Applications. Specialized sand deposits which feature unique shape and chemical makeup offer many benefits to the well designer.

RECOMMENDED PARAMETERS

| | |
|---------------------------|-------|
| Silica Content | 90%+ |
| Acid Solubility (15% HCL) | <1% |
| Specific Gravity | 2.60+ |
| AWWA Porosity | 44%+ |
| Roundness | 0.6+ |

Common Sand versus Colorado Silica Sand®

Round and spherical grains enhance the flow of water through the gravel pack. A filtering action occurs to secure the fines and prevent them from entering the well. Angular, crushed or most common sands are not recommended for this application due to the reduction of permeability of the gravel pack. **Well efficiency and yield enhancements can be directly attributed to the shape of the sand grain.**

Uniformity:

Controlling the particle distribution is critical in proper sizing of gravel pack for wells. Today's well designers realize the correct sand size can prevent loss of particles smaller than the recommended screen size. It is recommended that reviewing samples for shape requirements and sizing can prevent inferior products from being used in this specialized application.

Colorado Silica Sand® Benefits

Colorado Silica Sand® offers you the following Features and Benefits:

| FEATURE | BENEFITS |
|--|---|
| Well-rounded and spherical grains | <ul style="list-style-type: none">• Provide the highest permeability and porosity• Less likely to compact during well development• Reduced drawdown• Larger effective well radius• More effective well development• Greater gradation accuracy |
| Hard air- and water-worn grains | <ul style="list-style-type: none">• Less likely to produce fines during transport |
| 90+% silica quartz grains | <ul style="list-style-type: none">• More resistant to acid treatment or acidic water• No adverse effects on water quality |
| Washed and cleaned | <ul style="list-style-type: none">• Minimal loss of material during well development• Minimized well development time• Less likelihood of water contamination• Free of clay, silt, dirt, organic or other foreign matter |
| Dried | <ul style="list-style-type: none">• Permits more accurate screening• Permits more accurate weight determination |
| Comprehensive Quality Control procedures | <ul style="list-style-type: none">• Screening accuracy• Uniform gradation• Assures that material meets or exceeds design specifications |
| UC ≤ 2.5 | <ul style="list-style-type: none">• Lower head loss through filter pack• Less separation during transport and installation |
| Industry Certifications | <ul style="list-style-type: none">• AWWA A-100• AWWA B-100• NSF-61 |



DISCLAIMER

The technical data contained herein is subject to change without notice and does not represent a commitment on the part of Premier Silica or its representatives. Over time and even within the same shipment, product gradations as well as physical and chemical characteristics may fluctuate due to natural variations in the raw product. It is recommended that the user request current technical data before making any design decisions.

WARNING

**CONTAINS FREE (RESPIRABLE) SILICA
DO NOT BREATHE DUST FROM THIS PRODUCT
NEVER USE FOR SAND BLASTING**

This material contains fine (respirable) silica dust. If you inhale dust from this product, you may develop silicosis, a severe, irreversible lung disease that can cause death. The National Institute for Occupational Safety and Health (NIOSH), the International Agency for Research on Cancer (IARC) and the American Thoracic Society (ATS) link inhalation of silica dust to lung cancer. Medical reports link inhalation of silica dust to crippling arthritis. Exposure may cause skin and eye irritation.

NEVER USE THIS MATERIAL WITHOUT APPROVED RESPIRATORY PROTECTIVE EQUIPMENT

For approved respiratory protective equipment, refer to the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Act (OSHA) and the Mine Safety and Health Act (MSHA). See applicable Federal Laws:

29 CFR §1910.134 and 29 CFR §1910.1000

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Complete Network of Premier Silica Facilities

**For more information
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