Safety Data Sheet (2001/58/EC)

Product Trade Name: QUIK-GEL GOLD™

Revision Date: 12-Sep-2007

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of Substance or Preparation

Product Trade Name: QUIK-GEL GOLD™
Synonyms: None
Chemical Family: Mineral
Application: Viscosifier

Company Undertaking
Identification
Halliburton Manufacturing Services, Ltd.
Deveron Facility, Howemoss Place
Kirkhill Industrial Estate
Dyce
Aberdeen, AB21 0GS
United Kingdom

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www.halliburton.com

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARDS IDENTIFICATION

Risk Phrases
None

Hazard Overview
CAUTION! - ACUTE HEALTH HAZARD
May cause eye and respiratory irritation.

DANGER! - CHRONIC HEALTH HAZARD
Breathing crystalline silica can cause lung disease, including silicosis and lung cancer. Crystalline silica has also been associated with scleroderma and kidney disease.

This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposures below recommended exposure limits. Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product. Review the Material Safety Data Sheet (MSDS) for this product, which has been provided to your employer.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Percent</th>
<th>EINECS NUMBER:</th>
<th>UK WEL</th>
<th>Germany MAK/TRK</th>
<th>Netherlands MAC</th>
<th>Netherlands EEC Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline silica, cristobalite</td>
<td>14464-46-1</td>
<td>0 - 1%</td>
<td>238-455-4</td>
<td>0.1 mg/m³</td>
<td>0.15 mg/m³</td>
<td>0.075 mg/m³</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Crystalline silica, tridymite</td>
<td>15468-32-3</td>
<td>0 - 1%</td>
<td>239-487-1</td>
<td>0.1 mg/m³</td>
<td>Not applicable</td>
<td>0.075 mg/m³</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Crystalline silica, quartz</td>
<td>14808-60-7</td>
<td>1 - 5%</td>
<td>238-878-4</td>
<td>0.1 mg/m³</td>
<td>0.15 mg/m³</td>
<td>0.075 mg/m³</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Bentonite</td>
<td>1302-78-9</td>
<td>60 - 100%</td>
<td>215-108-5</td>
<td>10 mg/m³</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Under normal conditions, first aid procedures are not required.

Notes to Physician Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media All standard fire fighting media

Unsuitable Extinguishing Media None known

Special Exposure Hazards Not applicable.

Special Protective Equipment for Fire-Fighters Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust.

Environmental Precautionary Measures None known.

Procedure for Cleaning/Absorption Collect using dustless method and hold for appropriate disposal. Consider possible toxic or fire hazards associated with contaminating substances and use appropriate methods for collection, storage and disposal.

7. HANDLING AND STORAGE

Handling Precautions This product contains quartz, cristobalite, and/or tridymite which may become airborne without a visible cloud. Avoid breathing dust. Avoid creating dusty conditions. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH certified, European Standard En 149, or equivalent respirator when using this product. Material is slippery when wet.

Storage Information Do not reuse empty container. Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Keep from excessive heat. Product has a shelf life of 12 months.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls**
Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits listed in Section 2.

**Respiratory Protection**
Wear a NIOSH certified, European Standard EN 149, or equivalent respirator when using this product.

**Hand Protection**
Normal work gloves.

**Skin Protection**
Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.

**Eye Protection**
Wear safety glasses or goggles to protect against exposure.

**Other Precautions**
None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical State:</th>
<th>Powder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>Tan</td>
</tr>
<tr>
<td>Odour:</td>
<td>Mild earthy</td>
</tr>
<tr>
<td>pH:</td>
<td>8.5-9.5 (3%)</td>
</tr>
<tr>
<td>Specific Gravity @ 20 C (Water=1):</td>
<td>2.5 - 2.6</td>
</tr>
<tr>
<td>Density @ 20 C (kg/l):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Bulk Density @ 20 C (kg/l):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Boiling Point/Range (C):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Freezing Point/Range (C):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Pour Point/Range (C):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flash Point/Range (C):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flash Point Method:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Autoignition Temperature (C):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability Limits in Air - Lower (g/m³):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability Limits in Air - Lower (%):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability Limits in Air - Upper (g/m³):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability Limits in Air - Upper (%):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Vapour Pressure @ 20 C (mmHg):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Vapour Density (Air=1):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Percent Volatiles:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Evaporation Rate (Butyl Acetate = 1):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in Water (g/100ml):</td>
<td>Slightly soluble</td>
</tr>
<tr>
<td>Solubility in Solvents (g/100ml):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>VOCs (g/l):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Viscosity, Dynamic @ 20 C (centipoise):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Viscosity, Kinematic @ 20 C (centistrokes):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Partition Coefficient/n-Octanol/Water:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Molecular Weight (g/mole):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Decomposition Temperature (C):</td>
<td>Not Determined</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

**Stability Data:**
Stable

**Hazardous Polymerisation:**
Will Not Occur

**Conditions to Avoid**
None anticipated
11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure
Eye or skin contact, inhalation.

Inhalation
Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). There is sufficient evidence in experimental animals for the carcinogenicity of tridymite (IARC, Group 2A).

Breathing silica dust may cause irritation of the nose, throat, and respiratory passages. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of dust may also have serious chronic health effects (See Chronic Effects/Carcinogenicity" subsection below).

Skin Contact
May cause mechanical injury.

Eye Contact
May cause eye irritation.

Ingestion
None known

Aggravated Medical Conditions
Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to quartz dust.

Chronic Effects/Carcinogenicity
Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC) has determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources can cause lung cancer in humans (Group 1 - carcinogenic to humans) and has determined that there is sufficient evidence in experimental animals for the carcinogenicity of tridymite (Group 2A - possible carcinogen to humans). Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997) in conjunction with the use of these minerals. The National Toxicology Program classifies respirable crystalline silica as Known to be a human carcinogen". Refer to the 9th Report on Carcinogens (2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

"There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an increased incidence of significant disease endpoints such as scleroderma (an immune system disorder manifested by scarring of the lungs, skin, and other internal organs) and kidney disease.

Other Information
For further information consult Adverse Effects of Crystalline Silica Exposure" published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997)."
Toxicity Tests

Oral Toxicity: Not determined
Dermal Toxicity: Not determined
Inhalation Toxicity: Not determined
Primary Irritation Effect: Not determined
Carcinogenicity: Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
Genotoxicity: Not determined
Reproductive/Developmental Toxicity: Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air) Not determined
Persistence/Degradability Not determined
Bio-accumulation Not Determined

Ecotoxicological Information

Acute Fish Toxicity: TLM96: 10000 ppm (Oncorhynchus mykiss)
Acute Crustaceans Toxicity: Not determined
Acute Algae Toxicity: Not determined

Chemical Fate Information Not determined
Other Information Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation
ADR Not restricted

Air Transportation
ICAO/IATA Not restricted

Sea Transportation
IMDG Not restricted

Other Shipping Information
Labels: None
15. REGULATORY INFORMATION

EC Supply labelling Requirements: This product is not subject to the labelling requirements of EC Directives 67/548/EEC and 88/379/EEC as amended.

Classification Crystalline silica is not classified as a carcinogen in EU Council Directives 67/548/EEC and 88/379/EEC.

Risk Phrases None

Safety Phrases None

EINECS Inventory All components are listed on the inventory.

Germany, Water Endangering Classes (WGK): WGK 0: Generally not water endangering.

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS: Not applicable

Additional Information For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Product Stewardship at 1-580-251-4335.

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***END OF MSDS***