



# Material Safety Data Sheet

## 1. Product and company identification

<b>Product name</b>	: GBW-5
<b>Supplier</b>	: Baker Hughes, Inc. 12645 W. Airport Blvd. Sugar Land, TX 77478 For Product Information/MSDSs Call: 281-351-8131
<b>Material Uses</b>	: Special: Fracturing Gel Breaker
<b>Code</b>	: 100175
<b>Validation date</b>	: 12/2/2011.
<b>Print date</b>	: 12/2/2011.
<b>Version</b>	: 1
<b>Responsible name</b>	: Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606
<b>In case of emergency</b>	: CHEMTREC 800-424-9300 (U.S. 24 hour) (001)281-276-5400 CANUTEC 613-996-6666 (Canada 24 hours)CHEMTREC Int'l 01-703-527-3887 (International 24 hour)

## 2. Hazards identification

<b>Physical state</b>	: Solid. [Crystals.]
<b>Color</b>	: White.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Emergency overview</b>	: WARNING!  CAUSES RESPIRATORY TRACT AND EYE IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.  Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
<b>Routes of entry</b>	: Dermal contact. Inhalation.
<b><u>Potential acute health effects</u></b>	
<b>Inhalation</b>	: Severely irritating to the respiratory system. May cause sensitization by inhalation.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Skin</b>	: Moderately irritating to the skin. May cause sensitization by skin contact.
<b>Eyes</b>	: Irritating to eyes.
<b><u>Potential chronic health effects</u></b>	
<b>Chronic effects</b>	: Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
<b>Target organs</b>	: Contains material which may cause damage to the following organs: upper respiratory tract, skin, eyes.
<b><u>Over-exposure signs/symptoms</u></b>	
<b>Inhalation</b>	: respiratory tract irritation, coughing, wheezing and breathing difficulties, asthma
<b>Ingestion</b>	: None known.
<b>Skin</b>	: irritation, redness
<b>Eyes</b>	: pain or irritation, watering, redness

## 2. Hazards identification

**Medical conditions aggravated by over-exposure** : Pre-existing respiratory and skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Ammonium persulphate	7727-54-0	60 - 100

## 4. First aid measures

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wear suitable protective clothing and gloves. Remove contaminated clothing and shoes.

## 5. Fire-fighting measures

**Flammability of the product** : No specific fire or explosion hazard.

### Extinguishing media

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.

**Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Hazardous thermal decomposition products** : nitrogen oxides,sulfur oxides

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

**Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

**Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

### Methods for cleaning up

## 6 . Accidental release measures

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Move containers from spill area. Approach release from upwind. Dike spill area and do not allow product to reach sewage system or surface or ground water. Notify any reportable spill to authorities. (See section 12 for environmental risks and 13 for disposal information.) Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8 . Exposure controls/personal protection

Occupational exposure limits		TWA (8 hours)			STEL (15 mins)			Ceiling			
Ingredients:	List name	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	ppm	mg/m <sup>3</sup>	Other	Notations
Ammonium persulphate	US ACGIH	-	0.1	-	-	-	-	-	-	-	

Consult local authorities for acceptable exposure limits.

Only components of this product with established exposure limits appear in the box above.

If OSHA permissible exposure levels are shown above they are the OSHA 1989 levels or are from subsequent OSHA regulatory actions. Although the 1989 levels have been vacated the 11th Circuit Court of Appeals, Baker Hughes recommends that these lower exposure levels be observed as reasonable worker protection.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Take off contaminated clothing and wash before reuse.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: Wear a respirator conforming to EN140 with Type A/P2 filter or better.

## 8 . Exposure controls/personal protection

- Hands** : Chemical-resistant gloves: Nitrile or Neoprene gloves.
- Eyes** : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.
- Skin** : Wear long sleeves and other protective clothing to prevent repeated or prolonged skin contact.

## 9 . Physical and chemical properties

- Physical state** : Solid. [Crystals.]
- Flash point** : Not available.
- Auto-ignition temperature** : Not available.
- Flammable limits** : Not available.
- Color** : White.
- Odor** : Not available.
- pH** : 4
- Boiling/condensation point** : Not available.
- Initial Boiling Point** : Not available.
- Melting/freezing point** : Not available.
- Relative density** : 1.98
- Density** : 16.49 (lbs/gal)
- Vapor density** : Not available.
- Odor threshold** : Not available.
- Evaporation rate** : Not available.
- VOC** : Not available.
- Viscosity** : Not available.
- Solubility (Water)** : % /Wt at 25 C (77F ) :85
- Vapor pressure** : Not available.
- Pour Point** : Not available.
- Partition coefficient (LogKow)** : Not available.

## 10 . Stability and Reactivity

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : No specific data.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Conditions of reactivity** : Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

## 11 . Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ammonium persulphate	LD50 Oral	Rat	689 mg/kg	-

### Chronic toxicity Remarks

1) Ammonium persulphate

Not available.

## 12 . Ecological information

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ammonium persulphate	Acute LC50 170000 ug/L	Crustaceans - Cyclopoid copepod - Cyclops strenuus	48 hours
	Acute LC50 87000 ug/L	Daphnia - Water flea - Daphnia pulicaria	48 hours

**Conclusion/Summary** : Not available.

### Biodegradability

**Conclusion/Summary** : Not available.





## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
<b>DOT Classification</b>	UN1444	AMMONIUM PERSULFATE	5.1	III		-
<b>TDG Classification</b>	UN1444	AMMONIUM PERSULFATE	5.1	III		-
<b>IMDG Class</b>	UN1444	AMMONIUM PERSULFATE	5.1	III		<b>Emergency schedules (EmS)</b> F-A S-Q
<b>IATA-DGR Class</b>	UN1444	AMMONIUM PERSULFATE	5.1	III		-

## 14 . Transport information

PG\* : Packing group

**DOT Reportable Quantity** : Not applicable.

**Marine pollutant** : Not applicable.

**North-America NAERG** : Not available.

## 15 . Regulatory information

**HCS Classification** : Irritating material  
Sensitizing material  
Target organ effects

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.  
**SARA 302/304/311/312 extremely hazardous substances**: No products were found.  
**SARA 302/304 emergency planning and notification**: No products were found.  
**SARA 302/304/311/312 hazardous chemicals**: diammonium peroxodisulphate  
**SARA 311/312 MSDS distribution - chemical inventory - hazard identification**:  
GBW-5: Fire hazard, Immediate (acute) health hazard  
CERCLA: Hazardous substances.: No products were found.  
**Clean Water Act (CWA) 307**: No products were found.  
**Clean Water Act (CWA) 311**: No products were found.  
**Clean Air Act (CAA) 112 regulated flammable substances**: No products were found.  
**Clean Air Act (CAA) 112 regulated toxic substances**: No products were found.  
**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** :  
Not listed

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Supplier notification</b>	: Ammonium persulphate	7727-54-0	60 - 100

**United States inventory (TSCA 8b)** : All components are listed or exempted.

### Canada

**WHMIS (Canada)** : Class C: Oxidizing material.  
Class D-2A: Material causing other toxic effects (Very toxic).  
Class D-2B: Material causing other toxic effects (Toxic).

**Canada (CEPA DSL)**: : All components are listed or exempted.

## 16 . Other information

**Label requirements** : CAUSES RESPIRATORY TRACT AND EYE IRRITATION. MAY CAUSE ALLERGIC RESPIRATORY AND SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

**Hazardous Material Information System (U.S.A.)** :

Health	1
Flammability	0
Physical hazards	1
Personal protection	j

## 16 . Other information

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



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☑ Indicates information that has changed from previously issued version.

### Notice to reader

NOTE: The information on this MSDS is based on data which is considered to be accurate. Baker Hughes, however, makes no guarantees or warranty, either expressed or implied of the accuracy or completeness of this information.

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