

Protective Equipment	TDG	WHMIS
<p>See SECTION VIII for details</p>	<p>Shipping Name: AMMONIUM PERSULFATE TDG Classification: Class 5.1 UN Number (PIN): UN 1444 Packing Group: PG III Emergency Response Guide Number: 140 Emergency Phone: CHEMTREC 1-800-424-9300</p> <p>See SECTION XIV for details</p>	<p>See SECTION XV for details</p>
	DOT	NFPA
	<p>Shipping Name: AMMONIUM PERSULFATE TDG Classification: Class 5.1 UN Number (PIN): UN 1444 Packing Group: PG III Emergency Response Guide Number: 140 Emergency Phone: CHEMTREC 1-800-424-9300</p>	

SECTION I: Chemical Product and Company Identification

Common/Trade Name	DWP-901-1
Synonyms	Not Available
Chemical Name	Not Available
Chemical Formula	Not Available
Chemical Family	Inorganic oxidizer
Supplier	Calfrac Well Services Ltd. 411-8 th Avenue SW Calgary, Alberta T2P 1E3
Document Number	MSDS-DWP-901-1 Rev 0
Date of Preparation	October 2, 2007
Prepared By	Calfrac Well Services Ltd
Phone number of Preparer	(403) 266 6000
Material Uses	Breaker for Oil Field Fracturing Fluids

SECTION II: Hazards Identification

Routes of Entry	[XX] SKIN [XX] EYE CONTACT [XX] INHALATION [XX] INGESTION
Threshold Limit Value	2 mg/m3/Not Est.
Skin Contact	Causes skin irritation. May cause skin sensitization, and allergic reaction, upon repeated exposures
Eye Contact	Hazardous in case of eye contact (irritant).
Ingestion	Very hazardous in case of ingestion.
Inhalation	Very hazardous in case of inhalation. Over-exposure may cause respiratory irritation.

SECTION III: Hazardous Ingredients

Name	Percent	CAS#	LD ₅₀ (oral rat)	LC ₅₀ (dermal)

	(%)			rabbit)
1. Ammonium Persulfate	>95	7727-54-0	820 mg/kg	Not Determined

SECTION IV: First Aid Measures

Skin Contact	Remove contaminated clothing as quickly as possible. Place victim under deluge shower. Gently and thoroughly wash the contaminated area with non-abrasive soap and water. Be particularly careful to clean folds in skin, crevices and groin. COLD water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before re-use.
Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush with running water for at least 15 minutes, keeping eyelids open. DO NOT use an eye ointment. Seek medical attention.
Ingestion	DO NOT induce vomiting. Examine lips and mouth to ascertain whether the tissues are damaged. Loosen tight clothing such as collar, tie, belt or waistband. If victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well-ventilated area, loosening tight clothing such as collar, tie, belt or waistband. Seek medical attention.

SECTION V: Fire Fighting Measures

Flash Point	The material is non-combustable
Flammable Limits	Not applicable
Extinguishing Media	Deluge with water, do not use Co2 or other gas filled extinguishers
Special Fire Fighting Procedures	Wear full protective equipment with self contained breathing apparatus.
Unusual Fire and Explosion Hazards	Non flammable. Explosive in the presence of combustible materials, of metals.

SECTION VI: Accidental Release Measures

Steps to be taken in case the Material is Spilled or Released	Stop leak if safe to do so. Avoid contact with a combustible material (wood, paper, oil, clothing). Keep substance damp using a water spray. Prevent entry into sewers, basements, or confined areas. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate.
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SECTION VII: Handling and Storage

Precautions to be taken in Handling and Storing	Keep container tightly closed. Keep in a cool, well-ventilated area. Highly toxic or infectious materials should be stored under separate lock and key. Keep away from sources of heat, ignition and combustible materials. Keep away from reducing agents, organic materials, metals and moisture. DO NOT breathe dust. DO NOT ingest. In case of inadequate ventilation, use respiratory protection.
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SECTION VIII: Exposure Control/Personal Protection

Special Protection Information	
Respiratory Protection	Use of chemical cartridge respirators when PEL and TLV limits will be exceeded
Ventilation	Use local exhaust ventilation or other engineering controls to keep airborne levels below recommended limits.
Protective Gloves	Chemical gloves
Eye Protection	Goggles

Other Protective Equipment (Specify)	Rubber apron
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SECTION IX: Physical and Chemical Properties	
Appearance	Solid granules
Color	White to off white
Odor	Slightly acid
Specific Gravity	1.98
Boiling Point (°C)	Not Determined
Melting Point (°C)	120°C
Solubility in Water	51% by weight
Percent Volatile by Volume	Not Determined
Evaporation Rate	Not Determined
Vapor Pressure (mm Hg)	Not Determined
Vapor Density (Air = 1)	7.9
pH	4-6

SECTION X: Stability and Reactivity	
Stability	<input checked="" type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE
Incompatibility (Conditions to Avoid)	Heat, moisture, shock, strong reducers, metals, organic materials.
Conditions of Reactivity	Corrosive in the presence of steel, aluminum, zinc, copper.
Hazardous Decomposition Products	Oxide of sulfur, sulfuric and ammonia
Hazardous Polymerization	<input checked="" type="checkbox"/> WILL NOT OCCUR <input type="checkbox"/> MAY OCCUR

SECTION XI: Toxicological Information	
Sensitization to Product	No Information Available
Carcinogenicity	No Information Available
Irritancy to Product	No Information Available
Reproductive Toxicity	No Information Available
Teratogenicity	No Information Available
Mutagenicity	No Information Available
Chronic Exposure	Repeated exposure to an highly toxic material may cause general deterioration of health by an accumulation in one or more human organs.
Name of Toxicological Synergistic Products	No Information Available

SECTION XII: Ecological Information		
Species	Time (hr)	LC50 (mg/L)
Bluegill sunfish	96	103
Rainbow trout	96	76.3
Daphnia	48	120
Grass shrimp	96	391

SECTION XIII: Disposal Considerations	
Waste Disposal Method	Recycle if possible. Consult local or regional authorities.

SECTION XIV: Transportation Information	
Proper Shipping Name	AMMONIUM PERSULFATE
Class	Class 5.1
TDG Label	Oxidizer

UN Number (PIN)	UN 1444
TDG Placard	Oxidizer 5.1
Packing Group	PG III
Emergency Response Guide Number	140
Emergency Telephone	CHEMTREC 1-800-424-9300

SECTION XV: Regulatory Information

WHMIS Classification	Class C	Division	Subdivision
	Class D	Division 2	Subdivision A

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR

SECTION XVI: Other

Other Information	October 2, 2007 New product
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The information contained herein is offered only as a guide to the handling of this specific product and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied. Calfrac Well Services Ltd. will not be liable for any damages, losses, injuries, or consequential damages, which may result from the use of or reliance on any information contained herein.