

1 . Product and company identification

Product name	: BF-9L
Supplier	: Baker Hughes, Inc. 12645 W. Airport Blvd. Sugar Land, TX 77478 For Product Information/MSDSs Call: 281-351-8131
Material Uses	: Special: Buffer Solution
Code	: 499667
Validation date	: 1/3/2012.
Print date	: 1/3/2012.
Version	: 1
Responsible name	: Global Regulatory Affairs - Telephone 281-276-5400 or 800-231-3606
In case of emergency	: 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

Physical state	: Liquid. [Clear.]
Odor	: Mild.
Color	: Colorless to light yellow.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: DANGER! CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS. HARMFUL IF SWALLOWED. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Inhalation.
Potential acute health effects	
Inhalation	: Corrosive to the respiratory system.
Ingestion	: Toxic if swallowed. May cause burns to mouth, throat and stomach.
Skin	: Corrosive to the skin. Causes burns.
Eyes	: Corrosive to eyes. Causes burns.
Potential chronic health effects	
Chronic effects	: Contains material that may cause target organ damage, based on animal data.
Target organs	: Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.
Over-exposure signs/symptoms	
Inhalation	: respiratory tract irritation, coughing
Ingestion	: stomach pains
Skin	: pain or irritation, redness, blistering may occur
Eyes	: pain, watering, redness
Medical conditions aggravated by over-exposure	: Pre-existing disorders involving any 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>
Potassium carbonate	584-08-7	30 - 60
Potassium hydroxide	1310-58-3	10 - 30

4 . First aid measures

- Eye contact** : Get medical attention immediately. Immediately flush the eye(s) continuously with lukewarm, gently flowing water for at least 20-60 minutes while holding the eyelid(s) open.
- Skin contact** : Wash affected area with soap and mild detergent for at least 20 - 60 minutes. 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** : In a fire or if heated, a pressure increase will occur and the container may burst.
- 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** : carbon dioxide,carbon monoxide,metal oxide/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. Do not breathe vapor or mist. 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**
- Small spill** : Stop leak if without risk. Move containers from spill area. Absorb with an inert material. Dispose of via a licensed waste disposal contractor.

6 . Accidental release measures

- Large spill** : Stop leak if without risk. 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.) Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

If RQ (Reportable Quantity) is exceeded, report to National Spill Response Office at 1-800-424-8802.

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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Keep away from acids. 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). Separate from acids. 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 ³	Other	ppm	mg/m ³	Other	ppm	mg/m ³	Other	Notations
Potassium hydroxide	US ACGIH OSHA PEL 1989	-	-	-	-	-	-	-	2	-	
		-	-	-	-	-	-	-	2	-	

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** : If a risk assessment indicates it is necessary, use a properly fitted, air purifying or supplied air respirator complying with an approved standard. 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.
- Hands** : Chemical-resistant gloves.
- Eyes** : Wear chemical safety goggles. When transferring material wear face-shield in addition to chemical safety goggles.

8 . Exposure controls/personal protection

Skin : Wear long sleeves and chemical resistant apron to prevent repeated or prolonged skin contact.

9 . Physical and chemical properties

Physical state : Liquid. [Clear.]
Flash point : Not available.
Auto-ignition temperature : Not available.
Flammable limits : Not available.
Color : Colorless to light yellow.
Odor : Mild.
pH : 13
 : Neat - without dilution.
Boiling/condensation point : Not available.
Initial Boiling Point : Not available.
Melting/freezing point : Not available.
Relative density : 1.47 (15.6 °C)
Density : 12.25 (lbs/gal)
Vapor density : Not available.
Odor threshold : Not available.
Evaporation rate : Not available.
VOC : Not available.
Viscosity : Not available.
Solubility (Water) : Not available.
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 : Highly reactive or incompatible with the following materials: combustible materials, organic materials, metals, acids and moisture.
 Reactive or incompatible with the following materials: oxidizing materials and reducing materials.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity : Slightly 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
Potassium carbonate	LD50 Oral	Rat	1870 mg/kg	-
Potassium hydroxide	LD50 Oral	Rat	273 mg/kg	-

Chronic toxicity Remarks

11 . Toxicological information

1) Potassium carbonate

Potash miners exposed to potassium carbonate during work exhibited symptoms of productive cough and slight breathlessness, but no significant impairment of lung function (Markham et al, 1981). Iron miners who inhaled 4 to 8 mg/m³ of potassium carbonate before and after their shift for 10 years were protected to some extent from silicosis (Beleckij et al, 1982).

2) Potassium hydroxide

Potassium hydroxide is a component of this product. Chronic exposures can produce dermatitis, cough, and breathing difficulty. Potassium hydroxide may cause irreversible effects which can be life-threatening. Systemic effects are due entirely to local tissue injury.

12 . Ecological information

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Potassium carbonate	Acute LC50 630000 to 670000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia - <24 hours	48 hours
Potassium hydroxide	Acute LC50 <510000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas - 1 to 7 days	96 hours
	Acute LC50 80000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis - Adult	96 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
DOT Classification	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-
TDG Classification	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-

14 . Transport information

IMDG Class	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		Emergency schedules (EmS) F-E S-C
IATA-DGR Class	UN3266	CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Contains: Potassium hydroxide, Potassium carbonate)	8	II		-

PG* : Packing group

DOT Reportable Quantity Potassium hydroxide, 615 gal of this product.

Marine pollutant Not applicable.

North-America NAERG : 154

15 . Regulatory information

HCS Classification : Toxic material
Corrosive 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: Potassium hydroxide; Potassium carbonate
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: BF-9L: Immediate (acute) health hazard, Delayed (chronic) health hazard
CERCLA: Hazardous substances.: Potassium hydroxide: 1000 lbs. (454 kg);
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: Potassium hydroxide
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

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

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class E: Corrosive material

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

16 . Other information

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

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

Health	3
Flammability	1
Physical hazards	0

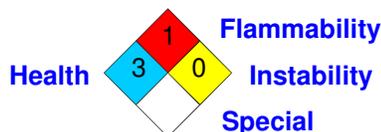
16 . Other information

Personal protection i

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.) :



Date of printing : 1/3/2012.

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.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of this product.

This MSDS was prepared and is to be used for this product. If the product is used as a component in another product, this MSDS information may not be applicable.