HALLIBURTON

SAFETY DATA SHEET

ABF

Revision Date: 08-Apr-2015 **Revision Number:** 24

1. Identification of the hazardous chemical and of the supplier

Product identifier

Product Name ABF

Other means of identification

Product Code: HM000013

Recommended use of the chemical and restrictions on use

Recommended Use Additive

Supplier details

Halliburton Energy Service (M) Sdn Bhd
10th Floor, G Tower,
199 Jalan Tun Razak,
50400, Kuala Lumpur, Malaysia
Phone Number: +603-9206 6888

Halliburton Energy Service (M) Sdn Bhd
Labuan Base,
Ranca-Ranca Industrial Estate
Labuan FT, LAB 82223 Malaysia
Phone Number: +60 87-596 200 ext Gate B-886086263

Halliburton Energy Service (M) Sdn Bhd
Warehouse 38, Phase 2, Kemaman Supply Base (KSB)
24007, Kemaman
Terengganu, Malaysia
Phone Number : +609-862 8000

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

Emergency Phone number

+1 281 575 5000

2. Hazard Identification

Classification of the hazardous chemical

Acute Oral Toxicity	Category 3 - H301
Skin Corrosion / Irritation	Category 1 - H314
Serious Eye Damage / Eye Irritation	Category 1 - H318
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335
Specific Target Organ Toxicity - (Repeated Exposure)	Category 1 - H372

Label Elements

Hazard Pictograms

Signal Word **Danger**

Hazard Statements

H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
H335 - May cause respiratory irritation
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements

Prevention

P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/eye protection/face protection

Response

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330 - Rinse mouth
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P363 - Wash contaminated clothing before reuse
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P310 - Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up

Disposal

P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains

Substances	**CAS Number**
Ammonium bifluoride	1341-49-7

Other hazards which do not result in classification

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

3. Composition and information on ingredients of the hazardous chemical

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Malaysia
Ammonium bifluoride	1341-49-7	> 60%	Acute Tox. 3 (H301) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335) STOT RE 1 (H372)

4. First-aid measures

Description of first aid measures

Inhalation If inhaled, move victim to fresh air and seek medical attention.

Eyes Immediately flush eyes with large amounts of water for at least 30 minutes. Seek prompt medical attention.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Most important symptoms and effects, both acute and delayed

Toxic if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. May cause damage to internal organs.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Physicochemical hazards arising from the chemical

Special Exposure Hazards

Use water spray to cool fire exposed surfaces. Decomposition in fire may produce harmful gases.

Special protective equipment and precautions for fire fighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Avoid contact with skin, eyes and clothing. Ensure adequate ventilation. Evacuate all persons from the area.
See Section 8 for additional information

Environmental precautions

Prevent from entering sewers, waterways, or low areas. Consult local authorities.

Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

Precautions for safe handling

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Store away from acids. Store away from alkalis. Store in a cool, dry location. Product has a shelf life of 24 months.

8. Exposure controls and personal protection

Control parameters

Exposure Limits

Substances	CAS Number	Malaysia OEL	ACGIH TLV-TWA
Ammonium bifluoride	1341-49-7	2.5 mg/m³	2.5 mg/m³

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection HEPA Respirator. If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Hand Protection Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Butyl rubber gloves. (>= 0.7 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

Skin Protection Rubber apron.

Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.

Other Precautions Eyewash fountains and safety showers must be easily accessible.

Environmental Exposure Controls Do not allow material to contaminate ground water system

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State: Solid
Color: White
Odor: Acrid
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	1
Freezing Point/Range	No data available
Melting Point/Range	No data available
Boiling Point/Range	239 °C / 463 °F
Flash Point	No data available
Evaporation rate	No data available
Vapor Pressure	1 hPa
Vapor Density	No data available
Specific Gravity	1.5
Water Solubility	Soluble in water
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	No data available

Explosive Properties	No information available
Oxidizing Properties	No information available

Other information

Molecular Weight	57.05
VOC Content (%)	No data available
Bulk Density	43.7 (lbs/ft3)

10. Stability and reactivity

Reactivity
Not expected to be reactive.

Chemical stability
Stable

Possibility of hazardous reactions
Will Not Occur

Conditions to avoid
None anticipated

Incompatible materials
Strong acids. Strong alkalis.

Hazardous decomposition products
Ammonia. Hydrogen fluoride.

11. Toxicological information

Information on possible routes of exposure
Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
Toxic if swallowed. Causes severe skin burns and eye damage. May cause respiratory irritation. May cause damage to internal organs.

Numerical measures of toxicity

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium bifluoride	1341-49-7	130 mg/kg (Rat)	No data available	No data available

Immediate, delayed and chronic health effects from exposure

Inhalation	Causes severe respiratory irritation.
Eye Contact	Causes severe eye burns.
Skin Contact	Causes severe burns.
Ingestion	Causes burns of the mouth, throat and stomach. May cause damage to bones and teeth.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may result in fluorosis. Symptoms include nausea, vomiting, loss of appetite, diarrhea, and/or constipation. Fluorosis also results in bone density increase.

Exposure Levels
No data available

Interactive effects

Skin disorders. Eye ailments.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
Ammonium bifluoride	1341-49-7	Causes severe skin irritation with tissue destruction.

Substances	CAS Number	Eye damage/irritation
Ammonium bifluoride	1341-49-7	Causes severe eye irritation which may damage tissue.

Substances	CAS Number	Skin Sensitization
Ammonium bifluoride	1341-49-7	No information available

Substances	CAS Number	Respiratory Sensitization
Ammonium bifluoride	1341-49-7	No information available

Substances	CAS Number	Mutagenic Effects
Ammonium bifluoride	1341-49-7	While some in vitro tests were positive and/or equivocal, in vivo results were negative. (similar substances)

Substances	CAS Number	Carcinogenic Effects
Ammonium bifluoride	1341-49-7	No information available.

Substances	CAS Number	Reproductive toxicity
Ammonium bifluoride	1341-49-7	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
Ammonium bifluoride	1341-49-7	No data of sufficient quality are available.

Substances	CAS Number	STOT - repeated exposure
Ammonium bifluoride	1341-49-7	Causes damage to organs through prolonged or repeated exposure: skeletal system

Substances	CAS Number	Aspiration hazard
Ammonium bifluoride	1341-49-7	Not applicable

12. Ecological information

Ecotoxicity
12.1. Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Ammonium bifluoride	1341-49-7	EC50 (72h) 369.9 mg/L (Skeletonema costatum)	LC50 (96h) 173 mg/L (Scophthalamus maximus) LC50 (96h) 421.4 mg/L LC100 (96h) 562 mg/L (Danio rerio) LC0 (96h) 237 mg/L (Danio rerio) NOEC (21d) 4 mg/L (Oncorhynchus mykiss)	No information available	LC50 (48h) 61 mg/L (Acartia tonsa) NOEC (21d) 8.9 mg/L (Daphnia magna)

Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Ammonium bifluoride	1341-49-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Bioaccumulation is unlikely

Substances	CAS Number	Log Pow
Ammonium bifluoride	1341-49-7	No information available

Mobility in soil

Substances	CAS Number	Mobility
Ammonium bifluoride	1341-49-7	No information available

Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal considerations

Disposal Method

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging This bag may contain residue of a hazardous material. Some authorities may regulate such containers as hazardous waste. Dispose of container according to national or local regulations.

14. Transportation information

Transportation Information

UN Number: UN1727
UN Proper Shipping Name: Ammonium Hydrogendifluoride, Solid
Transport Hazard Class(es): 8
Packing Group: II
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

Not applicable

Special precautions for user

None

HazChem Code

2X

15. Regulatory information

International agreements

Montreal Protocol - Ozone Depleting Substances: Does not apply
Stolkhom Convention - Persistent Organic Pollutants: Does not apply
Rotterdam Convention - Prior Informed Consent: Does not apply
Basel Convention - Hazardous Waste: Does not apply

Safety, health, and environmental regulations specific for the hazardous chemcial

Malaysia Occupation Safety and Health - Prohibition of Use Substances: Does not apply
Malaysia Substances Requiring Medical Surveillance: Does not apply
Malaysia Environmentally Hazardous Substances (EHS): One or more components listed.

16. Other information

Issuing Date: 01-Dec-2010
Revision Date: 08-Apr-2015
Revision Note
Update to Format SECTION: 2 3 4 6 7 8 10 11 12 16

Key literature references and sources for data
www.ChemADVISOR.com/
OSHA
ECHA C&L

Key or legend to abbreviations and acronyms
bw – body weight
CAS – Chemical Abstracts Service
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
ErC50 – Effective Concentration growth rate 50%
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
STEL – Short Term Exposure Limit
h - hour
d - day

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End of Safety Data Sheet