

SAFETY DATA SHEET

Product Trade Name: AF-61

Revision Date: 09-Mar-2015

Revision Number: 13

1. Identification**1.1. Product Identifier**

Product Trade Name: AF-61
Synonyms: None
Chemical Family: Blend
Internal ID Code: HM000050

1.2 Recommended use and restrictions on use

Application: Emulsifier
Uses Advised Against: No information available

1.3 Manufacturer's Name and Contact Details

Manufacturer/Supplier: Halliburton Energy Services
P.O. Box 1431
Duncan, Oklahoma 73536-0431
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Stewardship
Telephone: 1-580-251-4335
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1.4. Emergency telephone number

Emergency Telephone Number: (281) 575-5000

2. Hazard(s) Identification**2.1 Classification in accordance with paragraph (d) of §1910.1200**

Aspiration Category	Category 1 - H304
Skin Corrosion / Irritation	Category 1 - H314
Serious Eye Damage / Eye Irritation	Category 1 - H318
Carcinogenicity	Category 2 - H351
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H335 Category 3 - H336
Acute Aquatic Toxicity	Acute 2 - H401
Chronic Aquatic Toxicity	Chronic 2 - H411
Flammable liquids.	Category 4 - H227

2.2. Label Elements**Hazard Pictograms**

Signal Word	Danger
Hazard Statements	H227 - Combustible liquid H304 - May be fatal if swallowed and enters airways H314 - Causes severe skin burns and eye damage H318 - Causes serious eye damage H335 - May cause respiratory irritation H336 - May cause drowsiness or dizziness H351 - Suspected of causing cancer H401 - Toxic to aquatic life H411 - Toxic to aquatic life with long lasting effects
Precautionary Statements	
Prevention	P201 - Obtain special instructions before use P202 - Do not handle until all safety precautions have been read and understood P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking P260 - Do not breathe dust/fume/gas/mist/vapors/spray P264 - Wash face, hands and any exposed skin thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P273 - Avoid release to the environment P280 - Wear protective gloves/protective clothing/eye protection/face protection
Response	P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P310 - Immediately call a POISON CENTER or doctor/physician P363 - Wash contaminated clothing before reuse P370 + P378 - In case of fire: Use water spray for extinction P391 - Collect spillage
Storage	P403 + P235 - Store in a well-ventilated place. Keep cool P405 - Store locked up
Disposal	P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
Contains Substances	CAS Number
Heavy aromatic petroleum naphtha	64742-94-5
Naphthalene	91-20-3
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3

2.3 Hazards not otherwise classified

None known

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - US
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Heavy aromatic petroleum naphtha	64742-94-5	30 - 60%	STOT SE 3 (H336) Asp. Tox. 1 (H304) Aquatic Acute 2 (H401) Aquatic Chronic 2 (H411)
Naphthalene	91-20-3	1 - 5%	Acute Tox. 4 (H302) Carc. 2 (H351) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) Flam. Sol. 2 (H228)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	30 - 60%	Skin Corr. 1B (H314) Eye Corr. 1 (H318) STOT SE 3 (H335)

The exact percentage (concentration) of the composition has been withheld as proprietary.

4. First-Aid Measures

4.1. 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 30 minutes and remove contaminated clothing, shoes and leather goods immediately. Get medical attention immediately.
Ingestion	Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

4.2 Most important symptoms/effects, acute and delayed

Potential carcinogen. May cause respiratory irritation. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal. May cause skin burns. May cause eye burns. May cause headache, dizziness, and other central nervous system effects.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2 Specific hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce toxic gases.

5.3 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

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Remove sources of ignition. Ensure adequate ventilation. See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Scoop up and remove.

7. Handling and storage**7.1. Precautions for Safe Handling****Handling Precautions**

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities**Storage Information**

Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Product has a shelf life of 36 months.

8. Exposure Controls/Personal Protection**8.1 Occupational Exposure Limits**

Substances	CAS Number	OSHA PEL-TWA	ACGIH TLV-TWA
Heavy aromatic petroleum naphtha	64742-94-5	Not applicable	Not applicable
Naphthalene	91-20-3	10 ppm	TWA: 10 ppm STEL: 15 ppm
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	Not applicable	Not applicable

8.2 Appropriate engineering controls**Engineering Controls**

Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

8.3 Individual protection measures, such as personal protective equipment**Respiratory Protection**

Organic vapor respirator.

Hand Protection

Impervious rubber gloves.

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.

9. Physical and Chemical Properties**9.1. Information on basic physical and chemical properties**

Physical State: Liquid

Color:

Dark brown

Odor: Aromatic hydrocarbon

Odor

No information available

Threshold:

Property

Values

Remarks/ - Method

pH:

4.15

Freezing Point/Range	No information available.
Melting Point/Range	No data available
Boiling Point/Range	No data available
Flash Point	66 °C / 151 °F PMCC
Flammability (solid, gas)	No data available
upper flammability limit	No data available
lower flammability limit	No data available
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	0.959
Water Solubility	Insoluble 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

9.2. Other information

VOC Content (%)	No data available
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10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

Keep away from heat, sparks and flame.

10.5. Incompatible Materials

Strong oxidizers.

10.6. Hazardous Decomposition Products

Hydrogen chloride. Oxides of nitrogen. Carbon monoxide and carbon dioxide.

11. Toxicological Information

11.1 Information on likely routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

11.2 Symptoms related to the physical, chemical and toxicological characteristics**Acute Toxicity****Inhalation**

May cause mild respiratory irritation. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact

Causes severe eye irritation which may damage tissue.

**Skin Contact
Ingestion**

Causes severe burns.

Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Chronic Effects/Carcinogenicity This product contains a potential carcinogen.**11.3 Toxicity data****Toxicology data for the components**

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Heavy aromatic petroleum naphtha	64742-94-5	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 4.778 mg/L (Rat) 4h
Naphthalene	91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	No data available
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No data available	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Heavy aromatic petroleum naphtha	64742-94-5	Non-irritating to the skin (Rabbit)
Naphthalene	91-20-3	Non-irritating to the skin (Rabbit)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	Causes severe skin burns

Substances	CAS Number	Eye damage/irritation
Heavy aromatic petroleum naphtha	64742-94-5	Non-irritating to the eye (Rabbit)
Naphthalene	91-20-3	May cause mechanical irritation to eye. (human)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	Causes severe irritation and or burns

Substances	CAS Number	Skin Sensitization
Heavy aromatic petroleum naphtha	64742-94-5	Patch test on human volunteers did not demonstrate sensitization properties
Naphthalene	91-20-3	Did not cause sensitization on laboratory animals (guinea pig)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

Substances	CAS Number	Respiratory Sensitization
Heavy aromatic petroleum naphtha	64742-94-5	No information available
Naphthalene	91-20-3	No information available
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

Substances	CAS Number	Mutagenic Effects
Heavy aromatic petroleum naphtha	64742-94-5	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.
Naphthalene	91-20-3	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects.

Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available
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Substances	CAS Number	Carcinogenic Effects
Heavy aromatic petroleum naphtha	64742-94-5	Did not show carcinogenic effects in animal experiments
Naphthalene	91-20-3	Substances which should be regarded as if they are carcinogenic to man
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available.

Substances	CAS Number	Reproductive toxicity
Heavy aromatic petroleum naphtha	64742-94-5	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Naphthalene	91-20-3	Animal testing did not show any effects on fertility. Did not show teratogenic effects in animal experiments.
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

Substances	CAS Number	STOT - single exposure
Heavy aromatic petroleum naphtha	64742-94-5	May cause disorder and damage to the Central Nervous System (CNS)
Naphthalene	91-20-3	No data of sufficient quality are available.
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	May cause disorder and damage to the Respiratory system.

Substances	CAS Number	STOT - repeated exposure
Heavy aromatic petroleum naphtha	64742-94-5	No significant toxicity observed in animal studies at concentration requiring classification.
Naphthalene	91-20-3	No significant toxicity observed in animal studies at concentration requiring classification.
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

Substances	CAS Number	Aspiration hazard
Heavy aromatic petroleum naphtha	64742-94-5	Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.
Naphthalene	91-20-3	Not applicable
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortal l-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

12. Ecological Information

12.1. Toxicity

Ecotoxicity Effects

Product Ecotoxicity Data

No data available

Substance Ecotoxicity Data

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Heavy aromatic petroleum naphtha	64742-94-5	EC50 (72h) 7.8 mg/L (Pseudokirchneriella subcapitata)	LL50 (96h) 3.6 mg/L (Oncorhynchus mykiss) LC50 (96h) 357.7 mg/L (Scophthalmus maximus)	No information available	EL50 (48h) 1.1 mg/L (Daphnia magna) (similar substance)
Naphthalene	91-20-3	EC50 (72h) 0.4 mg/L (Skeletonema costatum)	LC50 (96h) 1.6 mg/L (Oncorhynchus mykiss) NOEC (40d) 0.37 mg/L (Coho salmon fry)	IC50 (24h) 29 mg/L (Nitrosomonas)	EC50 (48h) 2.16 mg/L (Daphnia magna) NOEC (125d) 0.59 mg/L (Daphnia pulex)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available	No information available	No information available	No information available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Heavy aromatic petroleum naphtha	64742-94-5	Readily biodegradable (58% @ 28d)
Naphthalene	91-20-3	Readily biodegradable (100% @ 7d)
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Heavy aromatic petroleum naphtha	64742-94-5	2.9 - 6.1
Naphthalene	91-20-3	3.30
Imidazolium compounds, 1-benzyl-4,5-dihydro-2-nortall-oil alkyl-1-(2-tall-oil aminoethyl), chlorides	68910-70-3	No information available

12.4. Mobility in soil

Substances	Mobility
Heavy aromatic petroleum naphtha	No information available
Naphthalene	No information available

12.5 Other adverse effects

No information available

13. Disposal Considerations

13.1. Waste treatment methods

Disposal Method

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

Contaminated Packaging

Follow all applicable national or local regulations.

14. Transport Information

US DOT

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): 9
Packing Group: Not applicable

Environmental Hazards: Marine Pollutant

US DOT Bulk

DOT (Bulk) NA1993, Combustible Liquid, N.O.S., Combustible Liquid, III
(Contains Petroleum Naphtha)

Canadian TDG

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): 9
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant

IMDG/IMO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): 9
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant

IATA/ICAO

UN Number: Not restricted
UN Proper Shipping Name: Not restricted
Transport Hazard Class(es): 9
Packing Group: Not applicable
Environmental Hazards: Marine Pollutant

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Special Precautions for User: None

15. Regulatory Information

US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

EPA SARA Title III Extremely Hazardous Substances Not applicable

EPA SARA (311,312) Hazard Class Acute Health Hazard
Fire Hazard
Chronic Health Hazard

EPA SARA (313) Chemicals Naphthalene//91-20-3

EPA CERCLA/Superfund Reportable Spill Quantity EPA Reportable Spill Quantity is 168 Gallons based on Naphthalene (CAS: 91-20-3).

EPA RCRA Hazardous Waste Classification If product becomes a waste, it does meet the criteria of a hazardous waste as defined by the US EPA, because of:

California Proposition 65 The California Proposition 65 regulations apply to this product.

MA Right-to-Know Law One or more components listed.

NJ Right-to-Know Law One or more components listed.

PA Right-to-Know Law One or more components listed.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory or are exempt.

16. Other information

Preparation Information

Prepared By

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Revision Date: 09-Mar-2015

Reason for Revision Update to Format SECTION: 2

Additional information

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

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

Key or legend to abbreviations and acronyms

bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
ErC50 – Effective Concentration growth rate 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NIOSH – National Institute for Occupational Safety and Health
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PEL – Permissible Exposure Limit
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
UN – United Nations
h - hour
mg/m³ - milligram/cubic meter
mm - millimeter
mmHg - millimeter mercury
w/w - weight/weight
d - day

Key literature references and sources for data

www.ChemADVISOR.com/

Disclaimer Statement

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End of Safety Data Sheet