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	Document Type: <b>Material Safety Data Sheet</b>
	Title: <b>HEF</b>

### 1. Identification of the product and Company Identification

<b>Product Name</b>	HEF – Types 60, 70 and 100	<b>Manufactured/ supplied by</b>
<b>Product use</b>	Bulk base emulsion	<b>BME</b> A division of Omnia Group (Pty) Ltd P.O. Box 70040 Bryanston South Africa 2021 Tel: 27 11 7098791 Fax:27 11 4633023
<b>Synonyms</b>	HEF	
<b>Chemical Formula</b>		
<b>Emergency telephone number</b>	<b>(+27) 11 706 3398</b>	

### 2. Composition/information on ingredients

**Substance/preparation:**

Chemical name*	CAS No	%	EC Number	Classification
Europe Ammonium Nitrate	6484-52-2	< 60	229-347-8	O: R8 R5 Xn; R22 Xi; R36/38
Calcium Nitrate	10124-37-5	< 30	233-332-1	O: R8 Xn; R22 Xi: R36/38 R: 22/38
Fuel Oil Composition		< 10		R: 10

\*See Section 16 for the full text of the R Phrases declared above

### 3. Hazards identification

<b>Classification</b>	O: R5; R8; R10 Xn: R22 Xi: R36/38 R: 44
<b>Additional hazards:</b>	Will not readily burn on its own, but if subjected to extreme external heat for a period of time, water can be driven off resulting in explosion risk.
<b>Effects and symptoms:</b>	May cause irritation to sensitive skin. Harmful if swallowed. May cause irritation in case of eye contact.
<b>Aggravating conditions:</b>	Not applicable

See toxicological information (section 11)

### 4. First aid measures

<b>First aid measures</b>	
<b>Inhalation</b>	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention.
<b>Ingestion</b>	: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention
<b>Skin contact</b>	: In case of skin contact. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse.
<b>Eye contact</b>	: Check for and remove any contact lenses. In case of contact immediately flush eyes with plenty of water for at least 20 minutes. Cold water may be used. Get medical attention.
<b>Note to physician</b>	: No specific treatment, treat symptomatically.
<b>Protection of first-aiders</b>	: No additional remark

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## 5. Fire-fighting measures

### Extinguishing media

<b>Suitable</b>	:	Do not attempt to fight HEF fire
<b>Not suitable</b>	:	No additional remark
<b>Unusual fire/explosion hazards</b>	:	If a transport vehicle or surrounding combustible material burns, extinguish.
<b>Special fire fighting procedures</b>	:	IF FIRE IS OUT OF CONTROL or has spread to the HEF, this could result in detonation, DO NOT FIGHT FIRE. Withdraw from the fire and let it burn itself out. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. First move people out of line-of-sight of the scene and away from windows.
<b>Protection of fire fighters</b>	:	Wear overalls, gloves, boots and eye protection as well as self contained breathing apparatus.

## 6. Accidental release measures

<b>Personal precautions</b>	:	Overalls buttoned to the neck and wrist. Rubber boots. Gloves. Eye protection.
<b>Environmental precautions</b>	:	Block source of spill and contain spill. Absorb with DRY earth or sand. Prevent entry into sewers, basements or confined areas, dyke if needed. If spill occurs on roadside, mix with dry earth. Use appropriate tools to collect into drums or suitable containers. Dispose waste using a professional registered waste disposal company.

**Note:** See section 8 for personal protective equipment and section 13 for waste disposal.

## 7. Handling and storage

<b>Handling</b>	:	Keep away from sources of ignition. Keep away from incompatibles, such as combustible material, organic materials, alkalis and acids.
<b>Storage</b>	:	Store in steel tanks or containers. DO NOT store adjacent to any potentially extreme source of heat or accumulation of combustible material. No open flames or smoking allowed in the vicinity.
<b>Packaging materials</b>	:	Store in steel tanks.
<b>Recommended use:</b>	:	Store in separate containers/tanks.
<b>Not suitable</b>	:	No additional remarks

## 8. Exposure controls/personal protection

<b>Engineering measures</b>	:	Provide exhaust ventilation or other engineering controls to keep in the airborne concentrations of vapours below their respective occupational exposure limits.
<b>Hygiene measures</b>	:	Wash hands after handling compounds and before eating, smoking, using ablution facilities and at the end of the day.

### Occupational exposure limits:

Ingredient name	Occupational exposure limits
No additional information	No additional information

<b>Recommended monitoring procedures</b>	:	No additional information
<b>Personal protective equipment</b>	:	
<b>Respiratory system</b>	:	A respirator is not required under normal and intended conditions of product use.
<b>Skin and body</b>	:	Overalls buttoned to the neck and wrist
<b>Hands</b>	:	PVC gloves or similar suitable
<b>Eyes</b>	:	Eye protection

## 9. Physical and chemical properties

<b>Physical state</b>	:	Viscous black emulsion
<b>Colour</b>	:	Black
<b>Odour</b>	:	Fuel like
<b>Odour threshold</b>	:	Not available
<b>Boiling point</b>	:	No data available
<b>Melting point</b>	:	Not available
<b>Flash point</b>	:	Not available
<b>Flammability</b>	:	Flammable
<b>Density</b>	:	1.45 – 1.50 g/cc
<b>Vapour Density</b>	:	Not available
<b>Vapour pressure</b>	:	Not available
<b>Evaporation rate</b>	:	Not available
<b>Solubility - Water</b>	:	Insoluble
<b>Solubility – Solvent</b>	:	Soluble in most hydrocarbons
<b>Solubility - Coefficient</b>	:	Not available
<b>pH</b>	:	Acidic

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### 9. Physical and chemical properties Continued:

<b>Fire hazards in presence of various substances</b>	:	Contact with combustible or organic material may cause fire
<b>Auto-ignition temperature</b>	:	Not available
<b>Explosive properties</b>	:	Non-explosive (Risk of explosion if heated under confinement)
<b>Viscosity</b>	:	30 000 – 50 000 Cp @60°C
<b>Neurotoxicity</b>	:	Not available

### 10. Stability and reactivity

<b>Stability</b>	:	Product is stable
<b>Conditions to avoid</b>	:	The material becomes explosive after addition of the separate sensitizing material just before pouring down the blast hole. Avoid oxidising agents, combustible material, organic material, acids, alkali's, reducing agents and metals.
<b>Hazardous decomposition product</b>	:	Nitrous oxides and CO may be generated during detonation. Under normal storage conditions no hazardous decomposition product occurs.
<b>Hazardous polymerisation</b>	:	Will not occur.

### 11. Toxicological information

<b>Eyes</b>	:	Hazardous in case of eye contact (irritant)
<b>Skin</b>	:	Hazardous in case of skin contact (irritant). Skin inflammation is characterised by itching, scaling, reddening or occasionally blistering
<b>Inhalation</b>	:	None identified
<b>Ingestion</b>	:	May cause burns to mouth, throat and stomach
<b>Target organs</b>	:	None identified
<b>Acute toxicity</b>	:	None identified
<b>Carcinogenic</b>	:	None identified
<b>Mutagenicity</b>	:	None identified
<b>Reproductive hazards</b>	:	None identified

### 12. Ecological information

<b>Mobility</b>	:	Not available
<b>Soil/water partition coefficient</b>	:	Not available
<b>Persistence/degradability</b>	:	Not known
<b>Bio accumulative potential</b>	:	Not known
<b>German wvk</b>	:	Not known
<b>Remarks</b>	:	Not known

<b>Aquatic toxicity:</b>		
<b>Fish</b>	:	Extreme in high concentrations of nitrates affect fish and oil reduces oxygen in water
<b>Daphnia</b>	:	As above
<b>Algae</b>	:	Not available

### 13. Disposal considerations

<b>Methods of disposal</b>	:	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
<b>Waste classification</b>	:	Hazardous waste

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## 14. Transport information

### Transport Regulations

Regulatory information	UN Number	Name and description	Class	UN Packaging Group	Additional information
ADR/RID Class	3375	OXIDISING Material (Liquid) N.O	5.1	II	Limited quantity
ADN Class	3375	OXIDISING Material (Liquid) N.O	5.1	II	CEFIC Tremcard
IMDG Class	3375	OXIDISING Material (Liquid) N.O	5.1	II	<b>Emergency schedules</b>
IATA-DGR Class	3375	OXIDISING Material (Liquid) N.O	5.1	II	<b>AIR:</b> Forbidden <b>RAIL:</b> Applicable Hazchem and specific requirements of the relevant transport authority. Both <b>Rail</b> and <b>Road</b> must comply with: Hazardous Substance Act No 15 of 1973 and the OHSAct specifically the Regulations for Hazardous Chemical Substances <b>SEA:</b> As per UN recommendation and the IMDG Code. <b>HEF 100 conforms to Series 8 test requirement</b>

## 15. Regulatory Information

### EU Regulation

<b>Hazard symbols</b>	:	
<b>Indicator of Danger:</b>	:	
<b>Risk phrases</b>	:	R5 – Heating may cause explosion
	:	R8 - Contact with combustible material may cause fire
	:	R10 - Flammable
	:	R 22 – Harmful if swallowed
	:	R36 – Irritating to eyes
	:	R38 - Irritating to skin
	:	R44 – Risk of explosion if heated under confinement
<b>Safety phrases</b>	:	S15 – Keep away from heat
	:	S17 – Keep away from combustibles
	:	S24/25 – Avoid contact with skin and eyes
<b>Product use</b>	:	-

## 16. Other information

<b>Full text of R-Phrases with No:</b>	R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition
	R5	Heating may cause an explosion
	R8	Contact with combustible material may cause fire
	R9	Explosive when mixed with combustible material
	R10	Flammable
	R61	May cause harm to the unborn child
	R62	Possible risk of impaired fertility
	R20/22	Harmful by inhalation and if swallowed
	R22	Harmful if swallowed
	R36/38	Irritating to eyes and skin
	R33	Danger of cumulative effects
	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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**Text of classifications:**

<b>Appearing in Section 2</b>	E - Explosives
	O - Oxidising
	F - Highly flammable
	Repr. Cat. 1 – Toxic for reproduction Category 1
	Repr. Cat. 3 – Toxic for reproduction Category 3
	Xn – Harmful
	Xi – Irritant
N – Dangerous for the environment	

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<b>Date of printing</b>	: 27/09/2012
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<b>Recommended by</b>	: R Pathak (Research and development Manager)
<b>Verified by</b>	: D Mynhardt (director)

**Remark:**

This MSDS summarises, at the date of issue, our best knowledge of health and safety hazard information of the product, and in particular how to safely handle the product in the workplace. As **BME** cannot control the use and handling of the product, each user must review the MSDS in the context of how the user intends to handle and use the product in the workplace.

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