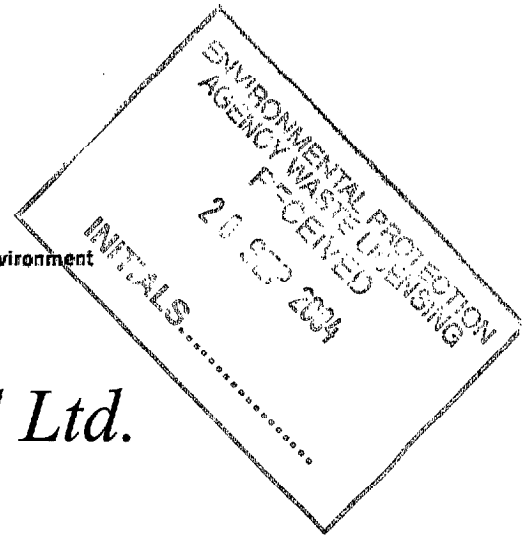




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Waste Recovery/Disposal Activities
(Other than Landfill Sites)

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Section E

Waste Acceptance and Handling



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Section E1

Existing Waste Types & Quantities

E.1 EXISTING WASTE TYPES AND QUANTITIES

Oxigen Environmental Ltd. currently operates a waste transfer facility at the site in accordance with the Waste Licence (Register No. 152-1) as received from the Environmental Protection Agency in December 2001. A copy of this licence is given in Attachment B.3.

Waste volumes collected to date are detailed below:

Waste Quantities accepted at the site to date	
Year	Volume (tonnes)
2002	16,645.22
2003	32,633
2004 to date	2,341 ^{Note 1}

Note 1: Facility was not operational between February and September 2004.

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Section E2

Proposed Waste Types & Quantities

E.2 PROPOSED WASTE TYPES AND QUANTITIES

Details of the proposed waste types and quantities to be accepted at the facility are presented in Table's E.2.1, E.2.2, E.2.3 and E.2.4 of the application form.

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Section E3

Waste Acceptance Procedures

E.3 WASTE ACCEPTANCE PROCEDURES

Introduction

The operator of the site shall accept only wastes as defined in Tables E.2.1, E.2.2, E.2.3, E.2.4 of the waste licence application form. In order that this requirement is achieved in full, Oxigen Environmental Ltd. will ensure that copies of the relevant documents are readily available to those persons charged with the management and the day to day running of the facility.

Oxigen Environmental Ltd. shall further ensure that those persons involved with the running of the facility shall be technically competent and have completed the FAS Waste Management Course to ensure the proper running of the facility.


Waste Acceptance Criteria

Oxigen Environmental Ltd. have developed a procedure for the baling of waste at the Robinhood Industrial Estate site. A copy of this procedure has been attached.

Operational Hours

The facility shall accept waste between the hours of 06:00 and 20:00 Monday and Saturday. Waste will not be accepted on the site after 20:00.

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	Oxygen Environmental Ltd. Environmental Management System Operational, Control and Monitoring Procedures	1
Title	Waste Acceptance Procedure	Page 1 of 2

1 Purpose / Scope

The purpose of this document is to describe the methods involved in ensuring that all waste being received on the site is segregated into the appropriate waste streams for recovery/recycling and that any materials on the unacceptable waste list are quarantined in the correct manner.

2 References

Weight Bridge Docket
 Unacceptable Waste List – Rev 00

3 Delivery of Skip to Customer

On delivery of skips to customers a list of unacceptable waste is attached.

These materials are as follows:

Waste Type	Description
Waste oil	Oil Liquids
Oil Filters	Vehicle/ machine types
Asbestos	Construction and Demolition industry types, house clearance etc.
Oil/ Sand mixtures and/ or mixtures of Oil and other materials	Oil spill clean ups and soak ups
Petroleum wastes	Petrol liquids and sludges
Chemical wastes	Drummed chemicals
Paints, Inks and Thinners	Solvent based liquids
Infectious Health Care wastes	From Hospitals and Industry
Lead Acid Batteries	Vehicle and machine types
Fluorescent Light Bulbs	Tubes and bulb types
Gas bottles/ cylinders	Empty metal types
CFC gases from refrigerators	Waste fridges
Large volumes of liquids	Volumes greater than 200 litres
Tyres	Vehicle and machine types

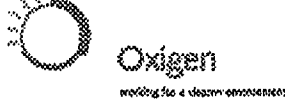
4 Collection of Skip

The driver arrives on site to collect a full skip.

He quickly inspects the skip to ensure that all the material is acceptable.

If the material is found to be acceptable, he will take it back to the transfer station.

If the material is unacceptable he will inform the customer that the materials must be removed before the skip is taken back to the yard.

	Oxygen Environmental Ltd. Environmental Management System Operational, Control and Monitoring Procedures	1
Title	Waste Acceptance Procedure	Page 2 of 2

5 On Site Acceptance of the Waste

On entering the site it is again visually inspected. If the materials are acceptable, the driver moves to the weighbridge for a weight reading and where the character of the waste is recorded

He is then directed where to offload by the yard supervisor.

Commercial waste is directed to the segregation shed.

Construction and Demolition waste is directed to the Construction and Demolition waste recovery area.

The materials are emptied onto the inspection floor of the various sections.

6 Non Conforming Waste.

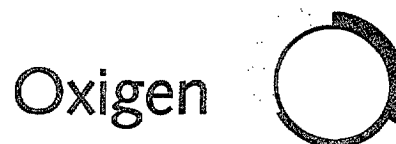
If the material presented is found to be unacceptable at any time after it has entered the site it is immediately loaded back into a skip and placed undercover in the waste quarantine area.

An appropriate facility for the recovery or disposal of the material will be identified immediately and the materials will be sent there to be properly dealt with.

The customer will be notified as to the offending material that has been found in the skip or bin.

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Procedure for Baling Waste at Robinhood



1 Purpose / Scope

The purpose of this document is to describe the methods involved in the operation of the baling station and the traffic management at Robinhood.

2 References

Safety Statement
Accident Reporting Procedure ERP 02

3 Records

Weighbridge Dockets
Maintenance Checks

4 Procedure

4.1 Traffic Management

4.1.1 Traffic Management

All waste vehicles shall be weighed entering and exiting the site. This is the responsibility of the weighbridge operator. All waste vehicles either entering or exiting the site shall pass onto the weighbridge as long as it is clear using normal rules of traffic. Right of way shall be given to traffic already on the weighbridge or traffic entering the site from the public road.

4.1.2 Waste In Vehicle Movements

Traffic entering the site shall pass onto the weighbridge via a barrier operated by the weighbridge operator this prevents any vehicles entering the site without any record of the transaction. The weighbridge operator shall record the vehicle registration, the direction of the waste, the type of waste, the origin of the waste and the gross weight of the vehicle, the date and time will be captured automatically by the system. Once the weighbridge operator has captured the relevant data it will then signal via a green traffic light that the driver may proceed into the yard.

The driver then proceeds to the queuing point. The driver waits their turn at the queuing point until a green light indicates which door he should proceed to for unloading. The driver then reverses in through the door and unloads the vehicle. The driver shall obey

Issued on:	Approved by: Operations Manager	Doc. No 37
01/06/04		Page 1 of 5

any instructions given by the yard supervisor with respect to vehicle movements. Once emptied the driver then proceeds to the weighbridge and the weighbridge operator captures the tare weight of the vehicle and correlates it to the incoming data. The weighbridge operator then prints out a weighbridge ticket for record keeping purposes and may also print a copy for the driver. Once the tare weight has been captured the weighbridge operator then opens the barrier to allow the vehicle to exit the site.

4.1.3 Waste Out Vehicle Movements.

The vehicle exiting the site shall enter onto the weighbridge. The weighbridge operator shall record the vehicle registration, the type of waste, the direction of the waste, the waste type and the gross weight of the vehicle, the date and time will be captured automatically by the system. Once the weighbridge operator has captured the relevant data it will then lift the barrier to allow the vehicle to exit the site. The tare weight for the vehicle with trailer and empty container shall be stored by the system and a net weight can be calculated alternatively a tare weight can be determined when the vehicle returns to the site.

4.1.4 Waste Records.

All waste movements shall be recorded on the GeneSys weighbridge system. As a minimum the vehicle registration, the waste type, the origin/destination, the gross weight, the tare weight and the date and time of the transaction shall be recorded on the system. If the system is not available then a written record shall be kept and updated onto the system at the earliest opportunity. At the end of each days operation a reconciliation of waste movements in and out shall be made and this shall be signed off by the Yard Supervisor. Any discrepancies in the weights in and out shall be investigated and resolved by the following day at the latest. Any unaccounted waste movements shall be reported to the Facility Manager.

In the event that the weighbridge system is unavailable then a manual record shall be taken either by the weighbridge operator or the yard supervisor. If the weight cannot be captured and no weight from the point of origin exists then a best estimate using previous averages shall be used. The weight records shall be updated on the system at the earliest available time and where weights have been estimated, this will be recorded in the comments section of the transaction.

4.2 Waste Handling

4.2.1 Waste Reception

Only waste from contractors with valid waste collection permits or waste collected by Local Authorities will be accepted for baling. Only waste in enclosed or covered containers will be accepted on site for processing

Only MSW waste will be accepted for baling, that includes household waste and light commercial packaging type waste. Heavy industrial skip type waste will not be accepted for baling as this type of material is beyond the scope of the baling machine.

All waste vehicles entering the site shall be directed to the appropriate bay for unloading by the yard supervisor. Any loads of waste entering the site which needs to be inspected shall be directed to the waste inspection bay for unloading. Any material found not suitable for baling during the baling process shall be placed in the Rejected Waste container for more appropriate disposal. Any waste material found that is not on our acceptable materials list shall be transferred to the Quarantine area for disposal at an appropriate facility as determined by the Facility Manager. The contractor delivering the non-conforming waste shall be notified of the non-conforming material received.

4.2.2 Waste Processing

Waste material deposited on the floor shall be loaded into the baler for baling by use of the grab machine. The grab machine may be fed by the loading shovel in order to minimise the movements of the grab machine. Any material found not suitable for baling during the baling process shall be placed in the Rejected Waste container for more appropriate disposal. Any waste material found that is not on our acceptable materials list shall be transferred to the Quarantine area for suitable disposal as determined by the Facility Manager.

The baler shall be operated by the baler operator in accordance with the instructions for baler operation as prescribed by the manufacturer.

4.2.3 Waste Despatch

The Shunter Driver is responsible for ensuring that the waste containers are positioned correctly against the baler diverter and secured properly to the anchor points and that the necessary safety interlocks are engaged prior to any loading of the container is allowed.

Once a waste container is full, the Shunter Driver is responsible for disabling the interlocks, unlocking the anchor points before attempting to remove the container from the baler diverter.

The full container can then be either temporarily parked in the yard in a space allocated, until a tractor unit is available to haul the waste container off site in accordance with paragraph 4.1.3. or shunted off site to the Ballymount site in accordance with paragraph 4.1.3 until a tractor unit is available to haul the waste container to the landfill site or taken out of the yard directly to the landfill site again in accordance with paragraph 4.1.3. The determination of the direction of the waste containers is the responsibility of the Yard Supervisor.

The operation hours of the Arthurstown landfill site are 8:30am to 4:30pm Monday to Friday and 8:30am to 12:30pm on Saturdays. Closed on Sundays and Public holidays. All drivers hauling containers to the Arthurstown site must follow the predetermined route set out by South Dublin County Council. That is down the Naas dual carriageway turning left for Killeel onto the Landfill Site back to the Naas dual carriageway the same way and then continue on to Naas turning around at the Naas M9 Motorway interchange. No travelling through Johnstown or crossing of the Naas dual carriageway is permitted.

4.3 Odour Management

4.3.1 Odour Minimisation Measures

All doors not being used are to be kept closed to minimise the movement of air from inside and outside the building. All waste containers are to be kept closed even when empty, unless they are being loaded or washed out.

Waste is to be processed on a first in first out basis. Waste containers are to be moved on a first in first out basis. An exception to this would be if an exceptionally odourous load arrived, then this load would receive priority processing and despatch.

4.3.2 Wash down

The baling machine shall be kept washed down during operation particularly around the baler eject door and the baler diverter area. Any spilled material shall be picked up on a continuous basis during processing. Waste containers when loaded shall be closed over and any material caught in the doors shall be removed.

4.3.3 Odour Inspection

A daily inspection shall be carried out to determine if there are any specific areas that can be identified as generating odours greater than the background. If there are any hot spots located these shall be actioned immediately. The odour inspection report is the responsibility of the Yard Supervisor. Any recurrent hot spots shall be notified to the facility manager.

4.3.4 Probe Units

The probe units use municipal water to generate a light mist over the waste reception and conveyor area of the facility. This mist is dosed with an active ingredient that attacks odour generating bacteria. These units shall be kept operational whilst there is waste material in the reception area or on the conveyor machine. Operational includes timed intermittent usage. The responsibility of the probe units is the Yard Supervisor. These units cannot be turned off during processing without the Facility Manager's authority.

4.4 Site Personnel

The site shall be operated by the following staff.

4.4.1 Facility Manager

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.2 EPA Compliance Officer

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.3 Yard Supervisor

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.4 Weighbridge Operator

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.5 Baler Operator

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.6 Machine Operators

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

4.4.7 Maintenance Supervisor

The Facility Manager shall be responsible for the operation of the facility and ensure that it is operated in accordance with the requirements of the waste licence.

5 Persons responsible

Operations Supervisor, Refuse Collection Vehicle Driver, Bin Operative, Waste Inspector, Quality Manager, Maintenance Manager



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Waste Recovery/Disposal Activities
(Other than Landfill Sites)

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Section E4

Waste Handling

E.4 WASTE HANDLING

Oxigen Environmental Ltd. have developed a procedure for the baling of waste at the site. A copy of this procedure is located in Attachment E.3, and details methods for waste handling on site.

Waste Quarantine Area

Any waste deemed not acceptable for processing at the facility will not be accepted on-site. In the event that non-conforming or dangerous (such as compressed gas cylinders) waste that inadvertently (due to the nature of the waste i.e. household) is found within the waste stream, it shall be removed and transferred to the Waste Quarantine Area or to specially designated coffins. Non-conforming waste will be stored in the waste quarantine area prior to being consigned off-site for authorised disposal or recovery.

On-Site Storage

Oxigen Environmental Ltd. proposes to store sealed containers of processed waste on site for a maximum of twenty four hours, during the weekdays, and for a maximum of forty eight hours during weekend. This waste shall be stored within the waste processing building. This is to allow waste acceptance to take place up until 20:00. It is anticipated that there will be a maximum of six containers stored on site overnight.

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Section E5

Raw Materials and Energy

E.5 RAW MATERIALS AND ENERGY

With the exception of the wastes described in Section E the other materials, intermediates and products used on site comprise fuel, lubricant oil and coolants/lubricants for the plant, cleaning agents and water.

Predicted raw material and energy consumption at the facility are presented in Table E 5.1. These figures are estimated from current usage figures.

Table E 5.1: Raw Material Consumption per Annum

Resource	Quantities
Diesel Oil (MGO)	30,000 litres
Hydraulic Oil (ISO 32)	500 litres
Washing Detergent	250 litres
Engine Oil (1540)	100 litres
Gear Oil	50 litres
Electricity	1,000,000 kWhr

Electricity for power supply to the offices for lighting and heating is the other source of energy used at the facility. This electricity demand is considered minimal.

Ref. N ^o or Code	Material/ Substance ⁽¹⁾	CAS Number	Danger ⁽²⁾ Category	Amount Stored	Annual Usage	Nature of Use	Organic/ Inorganic	R ⁽³⁾ - Phrase	S ⁽³⁾ - Phrase	Seveso Yes/No
-	Gas Oil/Derv	68334-30-5	Harmful	5,000	30,000	Gas Oil	Organic	40, 65, 66	43, 45, 53, 61, 62	No
-	Motor Spirits	86290-81-5	Extremely Flammable	100	100	Spark ignitioin in engines	Organic	12, 65, 38, 45, 51/53, 67	2, 7, 16, 23, 24, 43, 61, 62	No
-	Formula P-98	-	Corrosive	50	250	Bilge Cleaner/short lived detergent	Organic	36/38, 22, 34, 35, 37/38, 41	26, 37	No
-	Kerosines	-	Flammable	200	500	Fuel for heaters	Organic	10, 65, 38	2, 23, 24, 43, 61, 62	No
-	AiroNaut SBC	-	-	100	600	Used in rotary atomisers	Organic	-	-	No

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Ref. N ^o or Code	Material/ Substance ⁽²⁾	Ecological Aquatic				Toxicological				Radioactive Yes/No
		LC ₅₀ mg/l	Species	EC ₅₀ ⁽⁴⁾ mg/l	Species	Oral LD ₅₀ mg/kg	Species	IV LD ₅₀ mg/kg	Species	
-	Gas Oil/Derv	-	-	-	-	-	-	-	-	No
-	Motor Spirits	-	-	-	-	-	-	-	-	No
-	Formula P-98	4.8	Fathead Minnow	-	-	2.33	Male Rat	-	-	No
-	Kerosines	-	-	-	-	-	-	-	-	No
-	AiroNaut SBC	-	-	-	-	10000	rat	-	-	No

Ref. N ^o or Code	Material/ Substance ⁽²⁾	TA Luft Class 1, 2 or 3	Odour			EU Lists I and II (Tick and specify Group/Family Number)			
			Odorous Yes/No	Description	Threshold µg/m ³	Dangerous Substances Directive 76/464/EEC		Groundwater Directive 80/68/EEC	
						List I	List II +129 ⁽⁶⁾	List I	List II
-	Gas Oil/Derv	-	-	-	-	-	-	-	-
-	Motor Spirits	-	-	-	-	-	-	-	-
-	Formula P-98	-	-	-	-	-	-	-	-
-	Kerosines	-	-	-	-	-	-	-	-
-	AiroNaut SBC	-	-	-	-	-	-	-	-

GAS OIL/DERV

Campus Oil

MATERIAL SAFETY DATA SHEET

CAMPUS OIL

Importers and Distributors of Petroleum Products

DERV
ULTRA LOW SULPHUR DERV
GAS OIL CI
ULTRA LOW SULPHUR GAS OIL
MARINE GAS OIL
MARINE DIESEL OIL

BS EN 590
BS EN 590
BS 2869: CLASS A2 & D
BS 2869: CLASS A2 & D
ISO 8217 : DMA
ISO 8217 : DMB

1 IDENTIFICATION OF THE SUBSTANCE & OF THE COMPANY / UNDERTAKING

IDENTIFICATION OF THE SUBSTANCE OR PREPARATION:

All are middle distillate-type fuels. Campus Oil Derv is a gas oil for use in on-road automotive vehicles. Campus Oil Gas Oil and Marine Diesel and Gas Oils are used in stationary diesel engines in the industrial and marine markets, for off-road use and as a fuel for heating boilers and gas turbines.

Contains:

Fuels, Diesel: CAS No. 68334-30-5

EINECS No. 269-822-7

COMPANY IDENTIFICATION:

Campus Oil Limited
 Marine Terminal
 Marshmeadows
 New Ross
 Co. Wexford
 Telephone No. +353 51 421136

EMERGENCY TELEPHONE NO:

+353 51 421136

2 COMPOSITION / INFORMATION ON INGREDIENTS:

Complex mixtures of distillate hydrocarbons mainly paraffinic, naphthenic and aromatic in the range C10-C28. Catalytically and thermally cracked hydrocarbons may be present. Included may be small concentrations of cetane number improvers (organic nitrates), flow improvers (ethylene vinyl acetate copolymers), a lubricity additive (long-chain ester), silicone anti-foam additives and a HM C& E marker/ dye.

3 HAZARDS IDENTIFICATION

These oils, particularly when catalytically and thermally cracked hydrocarbons are present, may contain polycyclic aromatic hydrocarbons (PCAs); some PCAs have been shown to have a potential to cause skin cancer (category 3 carcinogen). There are small concentrations of cetane no. improvers, flow improvers, anti-foam and detergent additives and marker/ dye that are not considered to represent a health risk.

Injection of fuel under the skin may have serious medical effects.

May be dangerous for the environment.

4 FIRST AID MEASURES	
TYPE OF EXPOSURE	FIRST AID MEASURES
<p>Ingestion</p> <p>The swallowing of small amounts is unlikely to have adverse effects; larger amounts may cause irritation with diarrhoea and vomiting.</p> <p>Skin</p> <p>Unlikely to cause irritation on single contact. Prolonged or repeated contact may cause dermatitis which could eventually lead to irreversible skin disorders.</p> <p>Injection of fuel under pressure through the skin may have serious effects which at first may not seem serious but, within hours, may become very painful.</p> <p>Eyes</p> <p>May cause irritation with short-term redness and stinging.</p> <p>Inhalation</p> <p>Fumes or vapour may cause irritation to eyes and mucous membranes, and drowsiness leading to loss of consciousness.</p>	<p>Ingestion</p> <p>Wash mouth out with water and give water to drink. If a large amount has been swallowed get medical advice. DO NOT INDUCE VOMITING BECAUSE OF THE DANGER OF ASPIRATION.</p> <p>Skin</p> <p>Wash skin as soon as possible with soap and water. Change contaminated clothing and launder before reuse. Get medical advice if irritation persists.</p> <p>Any injection of fuel under the skin should be considered an EMERGENCY -get Medical Advice URGENTLY.</p> <p>Eyes</p> <p>Wash out thoroughly with large amounts of water. If redness and/ or irritation continues get medical advice.</p> <p>Inhalation</p> <p>If inhalation of vapour causes irritation or drowsiness remove to fresh air. Get medical advice if the symptoms continue.</p>

5 FIRE-FIGHTING MEASURES
<p>Extinguish with Dry Powder, Foam or Water Fog. For small fires use CO2 Do not use water jets</p> <p>Note -Flash Point 60° C. Fires in closed or confined spaces should be tackled by trained personnel who should wear breathing apparatus.</p>

6 ACCIDENTAL RELEASE MEASURES
<p>Treat any spillage as a fire hazard. Spray, vapour or mist can be a potential fire or explosion hazard.</p> <p>May cause damage to surfaces making them SLIPPERY.</p> <p>Contain spillage -do not wash spillage down drain. Absorb using absorbent clay, diatomaceous clay or other suitable absorbent.</p>

7 HANDLING AND STORAGE**7.1 Handling**

Where exposure is likely **PROTECTIVE CLOTHING** should be worn including impervious **GLOVES** and **EYE PROTECTION**. Ensure good ventilation.

7.2 Storage

Transport, handle and store in accordance with applicable local regulations and only in labelled containers designed for this product. Ground and bond shipping container, transfer line and receiving container if there is a chance that the tank has previously contained a low flash material.

Keep away from sparks, flame and other sources of ignition. Protect containers against static electricity, lightning and physical damage.

Drums should be stored on their sides on racks preferably under cover, out of direct sunlight, in well-ventilated conditions.

Other types of containers should be stored under cover out of direct sunlight, in well ventilated conditions. Care should be taken to avoid over-stacking.

8 EXPOSURE CONTROL / PERSONAL PROTECTION

Where prolonged or repeated exposure is likely **PROTECTIVE CLOTHING** should be worn including impervious **GLOVES** and **EYE PROTECTION**.

Respiratory protection -Unlikely to be required in normal use but ensure good ventilation -note Flash Point 60° C min. It is suggested that exposure is kept well below the level of Oil Mist quoted in the current HSE Guidance Note EH40:

Long term exposure limit -(8 hour TWA reference period) 5 milligrams per cubic metre.

Short term exposure limit -(15 minute reference period) -10 milligrams per cubic metre.

Hand and skin protection -Hand and skin protection is strongly recommended.

Eye protection -eye protection is recommended.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Straw to amber fluid; may be dyed red
Density at 15 °C	0.82-0.87
Boiling Range °C	150-385
Flash Point (PMC) °C	60 min
Viscosity, Kinematic at 40 ° C cSt	1.5-7.0

10 STABILITY AND REACTIVITY

Conditions to Avoid - heat (Note: Flash Point 60° C min).

Materials to Avoid - may react with strong oxidising materials.

Hazardous Decomposition Products -thermal decomposition may lead to the formation of a multiplicity of compounds some of which may be hazardous. With incomplete combustion smoke and hazardous fumes and gases, including carbon monoxide may be formed.

11 TOXICOLOGICAL INFORMATION

Toxicity following single exposure (orally, dermally or by inhalation) to gas oils is of a low order. When gas oils contain cracked components they are classified as category 3 carcinogens.

With the use of good occupational and hygiene practices any risk will be minimal.

12 ECOLOGICAL INFORMATION

Expected to harm aquatic organisms, may cause long-term effects in the aquatic environment. May bioaccumulate; films formed on water may affect oxygen transfer and damage organisms. Likely to biodegrade slowly.

13 DISPOSAL CONSIDERATIONS

Dispose by incineration or by methods approved by Local Authority.

Do not discharge into the public drainage system, or marine and inland waterways.

Marine Fuels should be disposed of in accordance with MARPOL Regulations.

14 TRANSPORT INFORMATION**TRANSPORT CLASSIFICATION**

HAZCHEM Code: 3/ Z Symbol: Flammable Liquid

UN: Flammable liquid, Class 3 (III)

UN Number (Substance Identification Number): 1202

UN Packing Group: III IMO Hazard Class: 3.3

ICAO Hazard Class: 3.3 IATA Hazard Class: 3

ADR/ RID Hazard Class: 3 -32 (c)

15 REGULATORY INFORMATION**LABELLING**

Symbol: Black St. Andrew's cross on orange square

Classification: Harmful. Contains Catalytically Cracked Oils.

R40 -Harmful. Possible risk of irreversible effects

R65 -Harmful: May cause lung damage if swallowed

R66 -Repeated exposure may cause skin dryness or cracking

S43 -In case of fire use foam/ dry powder/ CO2 /Halon. Never use water.

S45 -In case of accident or if you feel unwell, seek medical advice immediately (show label where possible)

S53 -Avoid exposure -obtain special instruction before use

S61 -Avoid release to the environment. Refer to special instructions/ Safety Data Sheet

S62 -If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

16 OTHER INFORMATION

Further information can be found in Health and Safety Executive publications, a list of which may be made available on request. This Material Safety Data Sheet has been produced in accordance to EU Directive 93/112/EEC

LEGAL NOTICE

The information in this Data Sheet applies only to the products designated herein and produced or supplied by Campus Oil or its subsidiary companies. It is based on our experience and on the data available to us at the time of its issue and is accurate to the

best of our knowledge. The customer is strongly advised to observe and ensure that its employees and customers observe all directions contained herein. However, no warranty is made or implied that the information is accurate or complete and no liability will be accepted whatsoever arising out of the use of the information or the products designated herein. Where third party products are used in conjunction with or instead of products produced or supplied by Campus Oil or its subsidiary companies, the customers should himself obtain all necessary technical, health and safety information about such products from the third party.

Issued: March 2003 DERV

GAS OIL
MARINE GAS OIL
MARINE DIESEL OIL

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MOTOR SPIRITS

Campus Oil

MATERIAL SAFETY DATA SHEET

CAMPUS OIL*Importers and Distributors of Petroleum Products*

SUPER UNLEADED MOTOR SPIRIT
LEADED MOTOR SPIRIT
UNLEADED MOTOR SPIRIT
LEAD REPLACEMENT PETROL
LOW SULPHUR PETROL

BS 7800
BS 4040
BS EN228
LRP
PU50

1 IDENTIFICATION OF THE SUBSTANCE & OF THE COMPANY / UNDERTAKING**IDENTIFICATION OF THE SUBSTANCE OR PREPARATION:**

MOTOR SPIRITS, also known as PETROL or GASOLINE, are fuels for spark ignition engines mainly for automotive and commercial use. They should not be used in aircraft engines, as solvents or for cleaning.

Contains Gasoline (low boiling point naphtha):

CAS No. 86290-81-5

EINECS No. 289-220-8

COMPANY IDENTIFICATION:

Campus Oil Limited
 Marine Terminal
 Marshmeadows
 New Ross
 Co. Wexford
 Telephone No. +353 51 421136

EMERGENCY TELEPHONE NO:

+353 51 421136

2 COMPOSITION / INFORMATION ON INGREDIENTS:

Complex mixtures of hydrocarbons mainly in the C4-C10 range. The principal components are paraffinic, naphthenic and aromatic hydrocarbons but cracked constituents and oxygenates can be present. May contain up to 1% Benzene and also additives such as lead alkyl compounds (BS 4040 only), potassium valve seat recession additive (LRP only) antioxidants and detergents, in low concentrations. Exposure limit values exist for the following components: benzene, n-hexane toluene, xylenes.

The following component, present at significant concentration, has health effects:

Conc.	Component	Class.	Risk phrases
>99%	Gasoline	T	R45 -May cause cancer
		Xn	R65 -May cause lung damage if swallowed
		Xi	R38 -Irritating to skin 1

3 HAZARDS IDENTIFICATION

Motor Spirits are classified as **Extremely Flammable**. The vapour is heavier than air and explosive mixtures can accumulate in low spots. It may be ignited at some distance away from exposed motor spirit resulting in flashbacks.

Aspiration into the lungs caused by vomiting is harmful and can be fatal.

Hazardous components include Benzene for which there is a maximum exposure limit of 5 ppm/ 16 mg m⁻³ (HSE Occupational Exposure Limits EH40). Benzene is listed in EH40, Appendix 9: Substances defined as Carcinogens for the purpose of the COSHH Regulations. If Benzene is present at a concentration equal to or in excess of 0.1% the Risk Phrase "R45 -May cause cancer" will apply.

CONTAINS BENZENE (CAS No. 71-43-2) : Carcinogen -Category 2.

4 FIRST AID MEASURES

TYPE OF EXPOSURE

Ingestion

The swallowing of small amounts may cause nausea and diarrhoea; larger amounts may cause irritation and drowsiness with vomiting.

Skin

Unlikely to cause irritation on single contact. Prolonged or repeated contact may cause short-term irritation, de-fatting of the skin and could result in dermatitis.

Eyes

May cause short-term irritation with redness and stinging.

Inhalation

High vapour concentrations can cause irritation to eyes and mucous membranes, and drowsiness leading to loss of consciousness.

FIRST AID MEASURES

Ingestion

Wash mouth out with water and give water to drink (milk if available) -get medical advice.
DO NOT INDUCE VOMITING BECAUSE OF THE DANGER OF ASPIRATION.

Skin

Wash skin as soon as possible with soap and water. Change contaminated clothing and launder before reuse.
Get medical advice if irritation persists.

Eyes

Wash out thoroughly with large amounts of water. If redness and/ or irritation continues get medical advice.

Inhalation

If inhalation of vapour causes irritation or drowsiness remove to fresh air. Get medical advice if the symptoms continue.

5 FIRE-FIGHTING MEASURES

Extinguish with agents approved for Class B hazards (e. g. Dry Powder, Foam or Carbon Dioxide). For small fires use CO₂, Dry Powder, sand, earth.

Note -Classified Extremely Flammable. Flammability Limits between 1% and 7%.

Fires in closed or confined spaces should be tackled by trained personnel who should wear breathing apparatus.

Do not use water jets; the use of water fog should be left to experienced personnel.

6 ACCIDENTAL RELEASE MEASURES

Treat any spillage as a major fire hazard.

Explosive mixtures can be formed particularly where there is poor ventilation. Vapour heavier than air and can collect in sumps and drainage systems.

Contain spillage -do not wash spillage down drain.

Absorb using absorbent clay, diatomaceous clay or other suitable absorbent.

May cause damage to surfaces, making them slippery.

7 HANDLING AND STORAGE**7.1 Handling**

Where exposure is likely **PROTECTIVE CLOTHING** must be worn including impervious **GLOVES** and **EYE PROTECTION**. Ensure good ventilation at all times -classified **Extremely Flammable**.

7.2 Storage

Transport, handle and store in accordance with applicable local regulations and only in labelled containers designed for this product. Ground and bond shipping container, transfer line and receiving container. Keep away from sparks, flame and other sources of ignition. Protect containers against static electricity, lightning and physical damage. Hot work (e.g. Cutting and welding) must not be carried out on or near any container used for storage of this product unless it has been made safe by purging or other suitable means.

Drums should be stored on their sides on racks preferably under cover, out of direct sunlight, in well ventilated conditions.

Other types of containers should be stored under cover out of direct sunlight, in well ventilated conditions. Care should be taken to avoid over-stacking. 3

8 EXPOSURE CONTROL / PERSONAL PROTECTION

Where prolonged or repeated exposure is likely PROTECTIVE CLOTHING must be worn including impervious GLOVES and EYE PROTECTION.

Respiratory protection -Unlikely to be required in normal use but ensure good ventilation -note classified Extremely Flammable.

8 hour TWA	-300 ppm
	-900 milligrams per cubic metre
15 minute STEL	-500 ppm
	-1500 milligrams per cubic metre

A Maximum Exposure Limit for Benzene is listed in HSE Guidance Note EH 40 -

Long term exposure limit -(8 hour TWA reference period) -5 ppm
-16 milligrams per cubic metre
No short term limit is listed.

Long term exposure limit -(8 hour TWA reference period) -0.1 milligrams per cubic metre of air

Hand and skin protection -Hand and skin protection is strongly recommended.

Eye protection -eye protection is recommended.

9 PHYSICAL AND CHEMICAL PROPERTIES**Typical properties:**

Appearance	Pale yellow fluid
Density at 15 °C	0.71 -0.78
Boiling Range °C	Approx. 35 -220
Reid Vapour Pressure at 37.8 °C bar	0.5 -1.25
Flash Point (PMC) °C	Typically minus 40
Flammability Limits % vol	Lower 1 -Upper 7.4

10 STABILITY AND REACTIVITY

Conditions to Avoid -heat (classified Extremely Flammable)

Materials to Avoid -may react with strong oxidising materials.

Hazardous Decomposition Products -thermal decomposition may lead to the formation of a multiplicity of compounds some of which may be hazardous. With incomplete combustion smoke and hazardous fumes and gases, including carbon monoxide may be formed.

11 TOXICOLOGICAL INFORMATION

Toxicity following a single exposure to high levels (oral, dermal, inhalation) is of a low order. Motor spirits are classified category 2 carcinogens due to their benzene content. Lead, which can accumulate in the body, is present in the BS 4040 grade. Adherence to the recommended hygiene measures will reduce any risks, which under normal conditions of use will be minimal.

12 ECOLOGICAL INFORMATION

Likely to harm aquatic organisms; may cause long-term adverse effects in the aquatic environment. Likely to evaporate readily, but any films formed on water may affect oxygen transfer and damage organisms. Expected to biodegrade slowly.

13 DISPOSAL CONSIDERATIONS

Disposal should be carried out by incineration or as required under Local Authority Regulations. Under no circumstances should motor spirit be discharged into the public drainage system, or marine and inland waterways.

14 TRANSPORT INFORMATIONTRANSPORT CLASSIFICATION

Flammable liquid

HAZCHEM Code: 3/ Y/ E Symbol: "Flammable Liquid" Diamond

UN: Flammable Liquid, Class 3

UN Number (Substance Identification Number): 1203

UN Packing Group: II IMO Hazard Class: 3.1

ADR/ RID Hazard Class: 3.3b

IATA: Flammable liquid Class 3, Packing Group 1 5

15 REGULATORY INFORMATIONLABELLING

Symbols: (i) Black flame on Orange Square

(ii) Black skull and crossbones on Orange Square

Classification: Extremely Flammable. Harmful [Contains Benzene, a Category 2 Carcinogen]. Irritant. Dangerous for the environment.

R12 -Extremely Flammable

R65 -Harmful: May cause lung damage if swallowed

R38 -Irritating to skin

R45 -May cause cancer

R51/ 53 -Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R67 -Vapours may cause drowsiness and dizziness

S2 -Keep out of reach of children

S7 -Keep container tightly closed

S16 -Keep away from sources of ignition -No smoking

S23 -Do not breathe fumes or vapour

S24 -Avoid contact with skin

S43 -In case of fire use foam/ dry powder/ CO2/ Halon -Never use water

S61 -Avoid release to the environment.

Refer to special instructions/ Safety Data sheet

S62 -If swallowed, do not induce vomiting: seek medical advice immediately and show the container or label

16 OTHER INFORMATION

This data sheet has been prepared in accordance with the requirements of the Data Sheet Directive 91/ 155/ EEC.

LEGAL NOTICE

The information in this Data Sheet applies only to the products designated herein and produced or supplied by Campus Oil or its subsidiary companies. It is based on our experience and on the data available to us at the time of its issue and is accurate to the

best of our knowledge. The customer is strongly advised to observe and ensure that its employees and customers observe all directions contained herein. However, no warranty is made or implied that the information is accurate or complete and no liability will be accepted whatsoever arising out of the use of the information or the products designated herein. Where third party products are used in conjunction with or instead of products produced or supplied by Campus Oil or its subsidiary companies, the customers should himself obtain all necessary technical, health and safety information about such products from the third party.

Issued: March 2003

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Formula P-98

Date of issue: 31 May 2004

Identification Name of substance / preparation and of the company under the name
Product details

Trade name: Formula P-98

Application of the substance / the preparation: Bilge Cleaner/short-lived detergent

Manufacturer/Supplier:
 Allied Environmental Detergents Ltd,
 Cammeray,
 Kennedy Road,
 Dunboyne,
 Co. Meath,
 Ireland.
 Tel. +353 1 825 5171

Further information obtainable from: Email: info@alliedenvironmentaldetergents.com

Information in case of emergency:

Telephone +353 1 825 5171

2. Composition/information on ingredients
Chemical characterisation**Description:**

Bilge Cleaner and short-lived detergent

Aqueous preparation containing the hazardous components listed below.

Dangerous components:

Component	CAS No.	EINECS No.	Classification	Concentration
Disodium Metasilicate	6834-92-0	229-912-9	C; R 34-37	2-5%
Potassium Hydroxide	1310-58-3	215-181-3	C; R 22-35	1-2%
Nonionic Surfactant	9016-45-9	-	Xi; R 37/38-41	0.5 – 1%

Additional information: For the wording of the listed risk phrases refer to section 16.

3. Hazards identification
Hazard description:

Xi Irritant

Information concerning particular hazards for human and environment:

R36/38 Irritating to eyes and skin.

Classification system:

The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

4. First-aid measures
After inhalation: Remove to fresh air; seek medical attention if irritation persists.**After skin contact:**

Immediately wash with soap and water and rinse thoroughly. Remove soiled clothing. Seek medical attention if irritation persists.

After eye contact:

Immediately rinse opened eye for several minutes under running water. Seek medical attention.

After ingestion:

DO NOT INDUCE VOMITING! Drink large quantities of water. Seek medical attention. Do not attempt to neutralize.

Formula P-98

Date of issue: 31 May, 2004

Fire-fighting measures**Suitable extinguishing agents:**CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Use fire-extinguishing methods suitable to surrounding conditions.

Special hazards caused by the substance, its products of combustion or resulting gases:

None

Protective equipment: Wear full protective suit and self-contained respiratory protective device when extinguishing fires.**Additional information:** Non-flammable.**6. Accidental release measures****Person-related safety precautions:**

Isolate spillage and clean up immediately.

Refer to Sections 7 & 8 for protective measures when handling the spillage.

Measures for environmental protection:

Do not allow the undiluted product to enter sewers/surface or ground water.

Measures for cleaning/collecting:

Mop-up or absorb spill with sponge, mop, towels, or a liquid-binding material (sand, universal binders, sawdust).

Use neutralizing agent if necessary.

Dispose of contaminated material as waste according to Section 13.

Rinse off area with water.

7. Handling and storage**Information for safe handling:**

Observe the general safety regulations when handling chemicals. For use by trained personnel only.

Avoid contact with the eyes, skin, clothing, and mucous membranes. Avoid inhalation of vapors. Keep away from children.

Storage: Store in original container at 25°C. Keep container closed during storage. Do not puncture container.**Requirements to be met by storerooms and receptacles:** No special requirements.**8. Exposure controls/personal protection****Ingredients with limit values that require monitoring in the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored within the workplace.

Additional information:

The lists valid during the creation of this MSDS were used as a basis for this assessment.

Personal protective equipment:**General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Respiratory protection:

Use suitable respiratory protective device if spraying or when aerosol is generated.

Protection of hands:

Chemical resistant gloves

Material of gloves: Nitrile rubber**Penetration time of glove material:**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Eye protection: Safety glasses**Body protection:** Chemical Resistant Apron

Formula P-98

Date of issue: 31 May, 2004

Physical and chemical properties**General Information****Form:** Liquid**Color:** Clear to Light Purple**Odor:** Characteristic**Change in condition****Melting point/Melting range:****Boiling point/Boiling range:** 99°C**Flash point:** Not applicable.**Self-igniting:** Product is not self-igniting.**Danger of explosion:** Product does not present an explosion hazard.**Vapour pressure:** 20mm Hg @ 20°C**Specific Gravity:** 1.042**Solubility in/Miscibility with water:** Complete.**pH-value(1:20 dilution):** 11 +/- 0.05**10. Stability and reactivity****Stability:** The product is stable in accordance with the recommended storage conditions.**Materials to be avoided:**

Strong acids

Hazardous reactions: No dangerous reactions known.**Hazardous decomposition of by-products:** Alkaline vapors.**11. Toxicological information****Acute toxicity:****LD/LC50 values relevant for classification:** Peroral LD50 of Surfactant in Male Rat 2.33 ml/kg**Primary effects:****After skin contact:** Overexposure may cause swelling, reddening, and possible skin damage.**After eye contact:** Overexposure may cause swelling, redness, or corneal damage.**After ingestion:**

Swallowing will lead to a corrosive effect on mucous membranes, esophagus, and gastrointestinal tract. May cause headache, nausea, vomiting, diarrhea, and abdominal pain.

Sensitization: No sensitizing effects known.**12. Ecological information****Ecotoxic effects:**

Of surfactant

BOD % Oxygen Consumption

Average 12.33% at day 5

Average 33.67% at day 10

Average 45.33% at day 20

Aquatic toxicity:

Of surfactant

IC50	Bacterial/NA > 5000mg/L
LC50 (48 h)	Daphnia 21.4 mg/L
LC50 (96 h)	Daphnia 6.6 mg/L
LC50 (96 h)	Fathead Minnow 4.8 mg/L

Release of large quantities of the undiluted product may have a harmful effect on fish and plankton due to pH shift.

Persistence and Degradability: The organic components are biodegradable.**Remark:** When used as recommended the product does not present an environmental hazard. Complies with MARPOL guidelines on control of pollution from ships.

Formula P-98

Date of issue: 31 May, 2004

13. Disposal considerations**Product:**

Chemical residues and remains should be routinely handled as special waste. This must be disposed of in compliance with anti-pollution and other laws of the country concerned. To ensure compliance we recommend that you contact the relevant (local) authorities and/or an approved waste-disposal company for information.

Packaging:

Disposal must be made in accordance with local waste management regulations.

Contaminated packaging must be disposed of in the same manner as the product or cleaned before recycling.

Non-contaminated packaging materials may be recycled. Contact your local service providers for further information.

Cleaning Materials: Water.

14. Transport information**Land transport ADR/RID (cross-border)**

ADR/RID class: 8 Corrosive substances.

Danger code (Kemler): 80

UN-Number: 1760

Packaging group: III

Hazard label: 8

Description of goods: 1760 CORROSIVE LIQUID, N.O.S. (POTASSIUM HYDROXIDE SOLUTION)

Maritime transport IMDG:

IMDG Class: 8

UN Number: 1760

Label: 8

Packaging group: III

EMS Number: F-A,S-B

Marine pollutant: No

Proper shipping name: CORROSIVE LIQUID, N.O.S. (POTASSIUM HYDROXIDE SOLUTION)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 8

UN/ID Number: 1760

Label: 8

Packaging group: III

Proper shipping name: CORROSIVE LIQUID, N.O.S. (POTASSIUM HYDROXIDE SOLUTION)

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Formula P-98

Date of issue: 31 May, 2004

15. Regulatory information

Labeling according to EU guidelines:

Code letter and hazard designation of product:



Xi Irritant

Risk phrases:

36/38 Irritating to eyes and skin.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

37 Wear suitable gloves.

16. Other information

This company cannot anticipate all conditions of handling and use of this product. Therefore, the company named above and all of its subsidiaries accepts no responsibility, expressed or implied, and disclaims all liability arising out of the use of this information. This company or any of their affiliates will accept no liability for damages or loss incurred from the improper handling and use of this product by itself or in combination with any other product.

Relevant R-phrases

22 Harmful if swallowed.

34 Causes burns.

35 Causes severe burns.

37 Irritating to respiratory system.

37/38 Irritating to respiratory system and skin.

41 Risk of serious damage to eyes.

Prepared by: Dr. J. J. Tobin, ChemHaz Solutions,
Email: info@chemhazsolutions.com

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KEROSINES

Campus Oil

MATERIAL SAFETY DATA SHEET**CAMPUS OIL***Importers and Distributors of Petroleum Products*

REGULAR BURNING OIL
PREMIUM BURNING OIL -PARAFFIN
AVTUR AVIATION FUELS

BS 2869 CLASS C2
BS 2869 CLASS C1
JET A1 & F34/ FSII

1 IDENTIFICATION OF THE SUBSTANCE & OF THE COMPANY / UNDERTAKING**IDENTIFICATION OF THE SUBSTANCE OR PREPARATION:**

These products are kerosene type fuels. Regular Burning Oil is used in fluid domestic burners and industrial space heaters. Premium Burning Oil is used in freestanding flueless domestic heating appliances. Jet A1 and F34 are aviation turbine engine fuels.

Contains kerosine:

Regular Burning Oil
 Premium Burning Oil
 Avtur Aviation Fuels

COMPANY IDENTIFICATION:

Campus Oil Limited
 Marine Terminal
 Marshmeadows
 New Ross
 Co. Wexford
 Telephone No. +353 51 421136

EMERGENCY TELEPHONE NO.:

+353 51 421136

2 COMPOSITION / INFORMATION ON INGREDIENTS:

Complex mixtures of distillate hydrocarbons mainly paraffinic, naphthenic and aromatic in the range C10-C28. Catalytically and thermally cracked hydrocarbons may be present. Included may be small concentrations of cetane number improvers (organic nitrates), flow improvers (ethylene vinyl acetate copolymers), a lubricity additive (long-chain ester), silicone anti-foam additives and a HM C & E marker/ dye.

3 HAZARDS IDENTIFICATION

Regular and Premium Burning Oils and Avtur Aviation Fuel are classified as flammable. Kerosines are classified as harmful due to the aspiration hazard. Prolonged and repeated skin contact can lead to irritation and dermatitis.

4 FIRST AID MEASURES**TYPE OF EXPOSURE****Ingestion**

The swallowing of small amounts is unlikely to have adverse effects; larger amounts may cause irritation with diarrhoea and vomiting.

Skin

Unlikely to cause irritation on single contact. Prolonged or repeated contact may cause short-term irritation, de-fatting of the skin and could result in dermatitis.

Eyes

May cause short-term irritation with redness and stinging.

Inhalation

Fumes or vapour may cause irritation to eyes and mucous membranes, and drowsiness leading to loss of consciousness.

FIRST AID MEASURES**Ingestion**

Wash mouth out with water and give water to drink. If a large amount has been swallowed get medical advice.
DO NOT INDUCE VOMITING BECAUSE OF THE DANGER OF ASPIRATION.

Skin

Wash skin as soon as possible with soap and water. Change contaminated clothing and launder before reuse.
Get medical advice if irritation persists.

Eyes

Wash out thoroughly with large amounts of water. If redness and/ or irritation continues get medical advice.

Inhalation

If inhalation of vapour causes irritation or drowsiness remove to fresh air. Get medical advice if the symptoms continue.

5 FIRE-FIGHTING MEASURES

Extinguish with Dry Powder, Foam or Water Fog. For small fires use CO2
Do not use water jets

Fires in closed or confined spaces should be tackled by trained personnel who should wear breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Treat any spillage as a fire hazard.
Spray, vapour or mist can be a potential fire or explosion hazard.

May cause damage to surfaces making them SLIPPERY.

Contain spillage -do not wash spillage down drain.
Absorb using absorbent clay, diatomaceous clay or other suitable absorbent.

7 HANDLING AND STORAGE

7.1 Handling

Where exposure is likely PROTECTIVE CLOTHING should be worn including impervious GLOVES and EYE PROTECTION. Ensure good ventilation.

7.2 Storage

Store in tanks and containers designed to contain flammable liquids and ensure storage area is not close to heat and ignition sources.

Drums should be stored on their sides on racks preferably under cover, out of direct sunlight, in well ventilated conditions.

Other types of containers should be stored under cover out of direct sunlight, in well ventilated conditions. Care should be taken to avoid over-stacking.

8 EXPOSURE CONTROL / PERSONAL PROTECTION

Where prolonged or repeated exposure is likely PROTECTIVE CLOTHING should be worn including impervious GLOVES and EYE PROTECTION.

Respiratory protection -Unlikely to be required in normal use but ensure good ventilation.

Long term exposure limit -(8 hour TWA reference period) 5 milligrams per cubic metre.

Short term exposure limit -(15 minute reference period) -10 milligrams per cubic metre.

Hand and skin protection -Hand and skin protection is strongly recommended.

Eye protection -eye protection is recommended.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear pale yellow fluid; may be dyed.
Density at 15 °C	0.72-0.82
Boiling Range °C	140-300
Flash Point (Abel)° C	38 min (PBO 43 min)
Benzene content % m/ m	<0.1

10 STABILITY AND REACTIVITY

Conditions to Avoid - heat (classified Flammable)

Materials to Avoid - may react with strong oxidising materials.

Hazardous Decomposition Products -thermal decomposition may lead to the formation of a multiplicity of compounds some of which may be hazardous. With incomplete combustion smoke and hazardous fumes and gases, including carbon monoxide may be formed.

11 TOXICOLOGICAL INFORMATION

Toxicity following a single exposure to high levels of kerosines (oral, dermal, inhalation) is of a very low order. Prolonged and repeated contact with kerosines may cause drying of the skin and possibly dermatitis. Prolonged inhalation of mists may cause inflammation of the lungs.

12 ECOLOGICAL INFORMATION

Slightly toxic to aquatic life, but unlikely to persist for sufficient time to pose a significant hazard; films formed on water may affect oxygen transfer and damage organisms. Expected to biodegrade slowly.

13 DISPOSAL CONSIDERATIONS

Disposal should be carried out as stipulated in any Local Authority Regulations. Under no circumstances should kerosines be discharged into the public drainage system, or marine and inland waterways.

14 TRANSPORT INFORMATIONTRANSPORT CLASSIFICATION

Flammable liquid: Diamond Symbol
HAZCHEM Code: 3/ Y)
UN: Flammable liquid, Class 3 (III)
UN Number (Substance Identification Number): 1223
UN Packing Group: III IMO Hazard Class: 3.3
ADR/ RID Hazard Class: 3. Item 31 (c)
IATA: Flammable liquid Class 3, Packing Group III.

15 REGULATORY INFORMATIONLABELLING

Symbol: Black St. Andrew's cross on orange square

Classification: Flammable; Harmful; Irritant; Dangerous for the environment

R10 -Flammable

R65 -Harmful: May cause lung damage if swallowed

R38 -Irritating to the skin

S2 -Keep out of reach of children

S23 -Do not breathe vapour

S24 -Avoid contact with skin

S43 -In case of fire use foam/ dry powder/ CO2/ Halon

Never use water jets.

S61 -Avoid release to the environment.

Refer to special instructions/ Safety Data Sheet

S62 -If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label

16 OTHER INFORMATION

Further Information can be found in various publications, a list of which may be obtained from the Health and Safety Authority of Ireland.

This data sheet has been prepared in accordance with the requirements of the Data Sheet Directive 91/ 155/ EEC.

LEGAL NOTICE

The information in this Data Sheet applies only to the products designated herein and produced or supplied by Campus Oil or its subsidiary companies. It is based on our experience and on the data available to us at the time of its issue and is accurate to the

best of our knowledge. The customer is strongly advised to observe and ensure that its employees and customers observe all directions contained herein. However, no warranty is made or implied that the information is accurate or complete and no liability will be accepted whatsoever arising out of the use of the information or the products designated herein. Where third party products are used in conjunction with or instead of products produced or supplied by Campus Oil or its subsidiary companies, the customers should himself obtain all necessary technical, health and safety information about such products from the third party.

Issued: March 2003

REGULAR BURNING OIL
PREMIUM BURNING OIL -PARAFFIN
AVTUR AVIATION FUEL

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MATERIAL SAFETY DATA SHEET

IMPORTANT NOTICE	The information contained in this Data Sheet is to be used in conjunction with the additional information, precautions and instructions for use which appear on the product label. It is the responsibility of the employer to ensure that all persons who use or handle this product should have access to, and be aware of, the information contained herein. Possession of this Data Sheet does not in itself constitute compliance with HSAW Act or COSHH Regulations.
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01	SUBSTANCE IDENTIFICATION
----	---------------------------------

NAME: **AiroNaut SBC** CODE: 000000

USE/APPLICATION: ODOUR BLOCK WITH ODOUR DESTRUCTIVE REAGENTS

SUPPLIED BY:

probe
INDUSTRIES

PROBE HOUSE
FOXHUNTERS ROAD
FOXHUNTERS INDUSTRIAL ESTATE
WHITLEY BAY
TYNE AND WEAR NE25 8UG
TEL: 0191 251 1888 FAX: 0191 251 0888

02	COMPOSITIONAL INFORMATION
----	----------------------------------

PROPRIETARY BLEND OF SURFACTANT POLYSORBATE 80. NO HAZARDOUS INGREDIENTS.

INGREDIENTS LISTED IN RELEVANT CHIP/EH40 DOCUMENTS		
DESCRIPTION	HAZARD IN NEAT FORM	LEVEL IN PRODUCT (%)
Polyoxethylene sorbitan mono-oleate (Cas No. 9005-65-6)	Low acute toxicity	5%

HAZARD RATING AT TYPICAL NEAT PRODUCT: NONE
HAZARD RATING AT TYPICAL USE DILUTION OF 1:100: NONE

03	HAZARDS IDENTIFICATION
----	-------------------------------

MAIN HAZARD (S): NON-HAZARDOUS PRODUCT

EXPOSURE ROUTE	SPECIFIC HAZARD
SKIN	LOW HAZARD VIA THIS ROUTE
EYES	MAY CAUSE MILD IRRITATION
INGESTION	WILL CAUSE STOMACH UPSET
INHALATION	NOT A HAZARD

04	FIRST AID MEASURES
----	---------------------------

EXPOSURE ROUTE	IMMEDIATE TREATMENT/ACTION
SKIN:	WASH WITH CLEAN WATER
EYES:	FLUSH WITH WATER FOR 15 MINS
INGESTION:	GIVE MILK OR WATER TO DRINK. SEEK MEDICAL AID
INHALATION:	N/A
	N/A

Issue Date 30/08/2004 AiroNaut SBC CHIP: Complies CPL: Supersedes Page 1 of 3



05	FIRE FIGHTING MEASURES
----	-------------------------------

PRODUCTS OF COMBUSTION: OXIDES OF CARBON, HYDROGEN AND NITROGEN
 FLAMMABILITY LIMITS: UEL (%) n.d LEL (%) n.d
 COMBUSTIBILITY: NON COMBUSTIBLE AUTOIGNITION TEMP: n.d °C
 EXTINGUISHING AGENTS: ALL EXTINGUISHANTS SUITABLE.
 PRECAUTIONS: WEAR SELF-CONTAINED BREATHING APPARATUS

06	ACCIDENTAL RELEASE MEASURES
----	------------------------------------

PERSONAL: SPILLAGE AREA MAY BE SLIPPERY
 OTHER: DO NOT ALLOW SPILLED MATERIAL TO ENTER STORM DRAINS OR
 SURFACE WATERWAYS
 CLEANUP: ABSORB USING SAND OR EARTH

07	HANDLING AND STORAGE
----	-----------------------------

HANDLING INSTRUCTIONS: USE PROTECTIVE EQUIPMENT AS DETAILED IN SECTION
 08
 STORAGE TEMPERATURE: MINIMUM 0 °C MAXIMUM 25 °C
 STORAGE CONDITIONS: IN A COOL DRY PLACE
 OK MATERIALS: PLASTICS NOT OK: MILD STEEL

08	EXPOSURE CONTROL PERSONAL PROTECTION
----	---

EXPOSURE ROUTE	PREVENTIVE ENGINEERING MEASURES	PERSONAL PROTECTION
SKIN		GOOD INDUSTRIAL HYGIENE IS NORMALLY SUFFICIENT
EYES		AVOID EYE CONTACT
INGESTION		DO NOT INGEST
INHALATION		NOT APPLICABLE
ADDITIONAL INFORMATION:		REFER TO SECTION 2 AND HSE GUIDANCE NOTE EH40 TO ESTABLISH CURRENT OEL/MEL VALUES

09	PHYSICAL AND CHEMICAL PROPERTIES
----	---

APPEARANCE: RED MOBILE LIQUID ODOUR: PLEASANT, CHERRY FRUIT
 RELATIVE DENSITY: 1.015 (@ 20 °C) ph(NEAT):8.0 ph(10% SOLUTION):7.5
 FREEZING POINT: -0 °C BOILING POINT: n.d °C
 EVAPORATION RATE (@ 20 °C; BUTYL ACETATE=100): n.d
 FLASH PT: N/A METHOD: N/A
 VAPOUR PRESSURE: n.d at °C VAPOUR DENSITY (@ 20 °C; AIR=1)n.d
 MISCIBILITY-WATER: MISCIBLE IN ALL PROPORTIONS OTHER: N/A
 OTHER PHYSICO-CHEMICAL DATA:



10

STABILITY AND REACTIVITY

GENERAL STABILITY: STABLE
 CONDITIONS TO AVOID: EXTREMES OF TEMPERATURE
 MATERIALS TO AVOID: DO NOT MIX WITH ANY OTHER PRODUCT
 DECOMPOSITION PRODUCTS:

11

TOXICOLOGICAL INFORMATION

ORAL LD50:>10000 mg/kg (SPECIES: ORAL, RAT(CALCULATED) DERMAL LD50: n.d. mg/kg
 (SPECIES:)
 ACUTE (SHORT TERM) EFFECTS: NONE KNOWN OR EXPECTED
 (INCLUDING DELAYED EFFECTS)
 CHRONIC (LONG TERM) EFFECTS; NONE KNOWN OR EXPECTED
 EXPOSURE LIMITS: REFER TO SECTION 2 AND HSE GUIDANCE NOTE EH40 TO
 ESTABLISH CURRENT OEL/MEL VALUES
 CARCINOGEN/MUTAGEN/TERATOGEN DATA: NOT KNOWN
 OTHER EFFECTS: NONE KNOWN

12

ECOLOGICAL INFORMATION

SUMMARY OF EFFECTS: NOT AN ECOHAZARD
 BIODEGRADABILITY: PASSES OECD BIODEGRADATION TEST
 BIOACCUMULATION DATA BIOACCUMULATION NOT EXPECTED
 CHEMICAL OXYGEN DEMAND: NOT KNOWN
 AQUATIC TOXICITY: LOW

13

DISPOSAL CONSIDERATIONS

DISPOSAL: ABSORB USING SAND OR EARTH AND DISPOSE AS SOLID WASTE

14

TRANSPORT INFORMATION

UN SUBSTANCE ID: IMDG CODE: CLASS: MFAG TABLE No: EmS No: ADR/RID CLASS:

15

REGULATORY INFORMATION

SYMBOLS (1): NONE (2): NONE
 WARNINGS:
 VOLUNTARY TEXT: KEEP OUT OF REACH OF CHILDREN

16

OTHER INFORMATION

The atomisation and spray delivery of any aqueous product is subject to variations in spraying efficiency, wind patterns, product dilution and local land or building features. We strongly recommend that AiroNaut installations are regularly checked for floor wetness. Such wet areas, depending on the nature of the floor, may be highly slippery and should be suitably marked as slip-hazard areas. Probe strongly recommends the application of a non-slip coating to such floor areas.




AiroNaut™

Technical Information Sheet – AiroNaut™

Odour Destructive Reagent (ODRs)

Description

AiroNaut™ is a perfect partner for Probe Atomising Units or other misting systems. Unlike normal odour control additives AiroNaut™ does not simply mask a nasty smell with a pleasant one. Instead, it's sophisticated science means it combines chemically with the odour molecules and destroys them. AiroNaut™ uses special surfactants and odour destructive reagents (ODRs) to absorb the organic substances and neutralise them completely. The ODRs employed within the AiroNaut™ formulation destroy any pathogens contained in the water supply. Disinfecting the water supply helps reduce the risk of contamination of pathogens such as Legionella. AiroNaut™ is not classified as hazardous under CHIP/COSHH.

Main Uses

For the reduction of malodour at the following facilities:

- Transfer Stations
- Sewage Treatment Works
- Landfills
- Chemical Plants
- Petrochemicals
- Composting
- Foundries
- Hospitals

Effective against

AiroNaut™ will quickly neutralise both simple & complex odour ie:

- Hydrogen Sulphide
- Ammonia
- Amines
- Mercaptans
- Skatole
- Sulphur dioxide
- Acetaldehyde
- Cadaverine

Main Advantages

- 100% Bio-degradable
- Environmentally friendly
- Safe under CHIP/COSHH
- Absorbs fugitive emissions
- Odourless or Flavoured
- Sterilisation of water supply
- Non-acidic or caustic
- Harmless to humans/animals

Application

- Headspace spraying over tanks, lagoons, skip areas etc
- Dilution range from:-
"100 parts water: 1 part AiroNaut™"
up to "500 parts water: 1 part AiroNaut™"
- Use with Probe Atomisers or fogging nozzles

Awards & Recognition

- DTI Innovation Award
- Trademarked
- North East Business Award

5 Serpentine Ave, Ballsbridge, Dublin 4
Tel: +353 1 668 4400 Fax: +353 1 668 4551
E-mail: info@pcpgroup.ie



Oxygen

working for a cleaner environment

Oxygen Environmental Ltd.

Waste Licensing
Waste Recovery/Disposal Activities
(Other than Landfill Sites)

For inspection purposes only
Consent of copyright owner required for all other uses

Section E6

Plant

E.6 PLANT

Plant used at the Oxigen Environmental Ltd. site include:

- Weighbridge – Avery J105, specification attached
- Harris waste baler (HRB 45D), manufacturers specifications attached
- Sennebogen 821 waste loader
- Terberg shunter tractor
- Loadall Teleporter

Details of the specifications of this plant is given in this attachment. In total 5 on-site plant are parked overnight in yard, such as shunter tractors etc.. All waste vehicle, such as trucks and vans will be stored on other Oxigen Environmental Ltd. sites.

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Industrial Products

J105 Weighbridge



The champion heavyweight, J105 - on solid foundations

The J105 weighbridge has been specially designed for flush mounting in the road surface, making it easily accessible from all sides. Its strut (free-motion) assembly enables even non-weighed vehicles to cross it in any direction - ensuring that normal, continuous traffic flow is always maintained.

Concrete platform

Designed by specialist structural engineers Ove Arup, the reinforced, pre-stressed concrete structure is factory cast under strict quality control and delivered complete to site. It provides an immensely strong platform, which unlike steel weighbridge structures, is unaffected by corrosion, eliminating the need for frequent scraping and painting.

A lifetime of performance

The four stainless steel compression load cells which support the J105's platform are engineered to withstand many years of heavy duty usage and to provide the high degree of accuracy essential to weighbridges. These load cells are also fitted as standard with surge arrestors - the most effective system of lightning protection. All the cells are made, tested and calibrated in the U.K. by Avery Berkel in one of the most advanced departments of its type in the world.

Adaptable

Available in capacities ranging from 40,000 kg to 60,000 kg and five platform sizes up to 18 m long by 3 m wide, the J105 range is ideal for a host of applications.

Tough and resilient

The J105 features in-built precision steel restraint which gives full protection against heavy braking and shock loading. In addition, the strut (free-motion) units ensure maximum protection from shear forces, which are the major cause of damage to unprotected load cells.

Indicator options

The J105 can be linked to the latest Avery Berkel indicator systems, data systems and printers to provide the most versatile and advanced weighbridge system available.

[Click here to contact us](#)

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The specification of the products and services described herein may vary from time to time and may be altered without notice.

**SCHEDULE 1
BALER SPECIFICATION**

PROPOSAL SPECIFICATION: 20030101

AUTOMATIC BALING PRESS MODEL: HRB-1545D, Metric (50HZ.)

GENERAL LAYOUT DRAWING: 4A-11111

APPLICATION: Shredded or unshredded solid waste material, paper stock, secondary fibers.

A CAPACITY AND RATING:

- | | |
|---|---|
| A1 PRESS BOX DIMENSIONS: | 1397 mm wide x 978 mm deep x 4727 mm long
(55" wide x 38-1/2" deep x 186" long) |
| A2 CHARGING BOX OPENING: | 1320 mm wide x 2794 mm long
(52" wide x 110" long) |
| A3 HOPPER OPENING: | 1879 mm wide x 3353 mm long
(74" wide x 132" long) |
| A4 COMPRESSION CHAMBER SIZE: | 1473 mm wide x 1016 mm deep x 1422 mm long
(58" wide x 40" deep x 56" long) |
| A5 APPROX. EXPANDED BALE SIZE: | 1625 mm wide x 1092 mm deep x 1574 mm long
(64" wide x 43" deep x 62" long) |
| A6 BALE WEIGHT: (AVERAGE) | 1632-2086 kgs. (3600-4600 lbs.)
Solid Waste material with average of 25% moisture. |
| A7 BALE VOLUME: | 2.13 cubic meters, (75 cubic ft.) |
| A8 APPROX. EXPANDED BALE VOLUME: | 2.77 cubic meters, (98 cubic ft.) |
| A9 BALING CYCLE: * | 1. Approx 100 seconds (Up to 36 cycles/hr)
Without door
2. Approx 120 seconds (Up to 30 cycles/hr)
With door |
| A10 APPROX. HOURLY CAPACITY: * | 1. 58.1 – 75.1 metric tons/hr w/out door
(64-82 short tons/hr)
2. 48.9 – 62.5 metric tons/hr. w/door
(54-68 short tons/hr) |

****NOTE: Performance Rates, Production Rates, Bale Weights, Bale Densities, are subject to Material Input Density Feed Rates, and other Variables of Production outside the control of HWMG, Inc..**

B COMPONENTS:

B1 ELECTRIC MOTORS:

- B1.1 MAIN SYSTEM:** Two (2) 150 HP, 1500 RPM, 415 volt, 3ø, 50 Hertz, protected enclosure.
- B1.2 COOLER SYSTEM:** One (1) 20 HP, 1500 RPM, 415 volt, 3ø, 50 Hertz, protected enclosure.
- B1.3 STRAPPER:** One (1) 10 HP, 1500 RPM, 415 volt 3ø, 50 Hertz, protected enclosure.

B2 ELECTRIC CONTROL SYSTEM:

- B2.1** One (1) NEMA XII control panel to include star delta motor starters for 380 to 600 volt power with overload protection, circuit breaker, control circuit transformer and cycle control system wired to terminal strips. Special starting requirements are available at additional cost.
- B2.2** One (1) operator's station enclosure to include oil tight control switches and signal lights, wired to terminal strips.

B3 HYDRAULIC SYSTEM:

- B3.1 MAIN PUMPS:** 2710 LPM, with 310 bar Peak baling pressure. (716 GPM, with 4500 p.s.i.)
- B3.2 COOLER PUMP:** One(1) @ 454 LPM (120 GPM)
- B3.3 STRAPPER PUMP:** One (1) @ 45 LPM @ 103 bar, (12 GPM @ 1500 p.s.i.)
- B3.4 VALVES: Harris or equal**
- B3.4.1** Individual relief valves protect each pump from overload pressure.
- B3.4.2** Directional valves are electrically controlled and hydraulically operated.
- B3.5 CYLINDERS: Harris or equal**
- B3.5.1 FIRST COMPRESSION:** 406 mm (16") bore, 410 m tons (452 short tons)
- B3.5.2 BALE EJECTOR:** 305 mm (12") bore, 154 m tons (170 short tons)
- B3.5.3 DOOR:** 203 mm (8") bore, 32.7 m tons (36 short tons)

B COMPONENTS (Continued)

B4 FILTERING AND COOLING SYSTEM:

B4.1 Filtering is by replaceable cartridge type micronic filters.

B4.2 Standard cooling system is oil to air heat exchanger.

B5 AUTOMATIC TIE-OUT: L & P. Wire-Tie System Model 331 Series strapping head and system. Designed for use with U. S. Wire-Tie System 11 gauge SUPER HI-TEN round steel strapping.

C OPERATION:

C1 There are three modes of operation: Manual; automatic repeat, standard; and automatic repeat with bale door. Manual operation is primarily for set up and maintenance purposes. Automatic repeat, both standard and with bale door, is normally synchronized with conveyor or other automatic methods of charging material and handling finished bales.

C2 The baling sequence is as follows: Loose material brought to the machine by conveyor or overhead surge bin may be charged on top of the first compression ram if it is forward, or directly in the box if the ram is fully retracted. Loose material which is charged only on top of the first ram falls into the box automatically as a function of the baling cycle.

At the start of an automatic cycle, the bale door is closed. The first compression ram extends fully forward. Any material extending above the ram is sheared off and is mixed with the next charge of material. The ram continues to compress and retract until a sufficient charge to form a bale is pushed into the compression chamber. The bale door opens and the ejector ram indexes the bale through the tie-out chamber. Both rams retract, the door closes, and one baling cycle is complete.

C3 A density selector switch is provided at the operator's control station to change the pressure sensing range in selected increments to compensate for material density.

D CONSTRUCTION:

D1 The baler is designed for flat surface, reinforced slab installation.

D2 Major sub-assemblies are heavy plate and structural weldments of cellular construction, stress relieved before machining to design dimensions.

D3 Final assembly is bolted and keyed.

D4 The entire press box and ram wear surfaces are fitted with bolt-on wear plates of heat treated alloy steel.

D5 All liner plates are sectional design for ease of replacement.

D6 All rams are box type steel weldments, stress relieved and machined to design dimensions.

D7 Shear knives are securely seated in press frame and first compression ram. All four edges of knives are designed for shearing.

D8 All pipe is electrically welded and securely anchored.

D CONSTRUCTION (Continued)

- D9 Pipe flanges are steel, bolted type, with "O" ring gaskets.
- D10 The baler is completely assembled, operated and tested before shipment.
- D11 Standard paint is machinery enamel over primer coat.
- D12 SHIPPING WEIGHT: 75 m tons (83 short tons), approx.

E GENERAL:

- E1 Layout and foundation prints show above grade dimensions and conditions. Below grade soil conditions, piers, piling, footings and associated components are matters of local determination for which our company can accept no responsibility.
- E2 Our company's technical services are available on a free advisory basis to assist in determining the location and material flow conditions best suited to utilize the high production of our equipment.
- E3 This proposal also includes the services of a qualified installation specialist for two (2) eight-hour working days. He will place the baler in operation and instruct your operator in recommended operating and maintenance procedures. (Transportation and sustenance outside the continental United States is for the purchaser's account.)
- E4 Harris will not accept back charges in connection with installation or start-up of this machine unless prior approval is obtained in writing from authorized Harris personnel.
- E5 Harris will not accept any charges for work performed on this machine during contracted warranty period unless prior approval is obtained in writing from authorized Harris personnel.

F EXPENSES ASSUMED BY THE PURCHASER TO COMPLETE THE MACHINE INSTALLATION:

- F1 Freight from Port of Dublin to destination.
- F2 Preparation of foundation.
- F3 Unloading and assembling of the baler.
- F4 Wiring from power source to electric control panel.
- F5 Furnishing all fuses.
- F6 Furnishing approximately 7600 Liters (2000 gallons) of hydraulic oil for the hydraulic system.
- F7 STRAPPING: L & P Wire-Tie System 11 gauge SUPER HI-TEN round steel strapping for use with Model 331 series head. (Alternate L & P strappers are available)

G LIMITED WARRANTY:

This machine is covered under Harris warranty (HWMG, Inc.990101W-Std) which is attached.

**SCHEDULE 2
DIVERTER LOADER SPECIFICATION**

PROPOSAL SPECIFICATION: 20030102

MODEL: HRB-1545D BALE DIVERTER WITH DOUBLE LOADER

GENERAL LAYOUT DRAWING: 4A-11178

APPLICATION:

Divert two (2) bales in front of Loader Ram(s).
Loader Ram(s) will position bales onto transport vehicles.

A APPROXIMATE DIMENSIONS:

A1 DIVERTER:

A1.1 DIVERTER RAM: 60" wide x 120" travel to Loader #1
60" wide x 246" travel to Loader #2

A1.2 DIVERTER TABLE: 70" wide x 246" long

A2 LOADER #1:

A2.1 LOADER RAM: 85" wide x 78" normal travel
125" full travel

A2.2 LOADER TABLE: 86" wide x 72" long

A3 LOADER #2:

A3.1 LOADER RAM: 85" wide x 78" normal travel
125" full travel

A3.2 LOADER TABLE: 86" wide x 72" long

A4 DIVERTER/LOADER TIME

**A4.1 TIME IN ADDITION TO NORMAL
BALING CYCLE FOR DIVERTING
OF TWO BALES AND CYCLING
LOADER ONCE PER BELOW:**

A4.2 @ LOADER #1 POSITION 77 seconds

A4.3 @ LOADER #2 POSITION 101 seconds

A4.4 LOADER OVERTRAVEL TIME 12 seconds
FOR FINAL PUSH ONTO TRAILER

****NOTE: Performance Rates, Production Rates, Bale Weights, Bale Densities, are subject to Material Input Density Feed Rates, and other Variables of Production outside the control of HWMG, Inc..**

B COMPONENTS:

B1 HYDRAULIC/ELECTRICAL SYSTEM: Integral with baler system

B2 CYLINDERS:

B2.1 DIVERTER: 7" bore, 26/35 tons

B2.2 LOADER(2): 7" bore, 38 tons

B2.3 BALE FLIPPER(2): 4" bore, 12 tons

C OPERATION:

C1 The baling cycle has ejected the first bale onto the diverter table. The bale is rolled 90 degrees as the baling cycle resumes. The bale diverter ram diverts the bale onto the loading table. Bale diverter ram retracts. The second ejected bale is rolled and diverted onto the loading table. The loader ram transfers the two bales onto the transport vehicle. The loader ram and diverter ram both retract. One entire sequence of the baler/diverter/loader is complete. The loader ram may be manually operated to push final bales completely onto the transport vehicle. The above sequence is repeated for a pre-determined number of cycles for either and or both loaders based on operator input..

D CONSTRUCTION:

D1 Major sub-assemblies are heavy plate and structural weldments of cellular construction, stress relieved before machining as required to design dimensions.

D2 Final assembly is welded/bolted and/or keyed.

D3 All rams are steel weldments, stress relieved and machined as required to design dimensions.

D4 All pipe is electrically welded and securely anchored.

D5 Pipe flanges are steel, bolted type, with "O" ring gaskets.

D6 The Diverter/Loader is completely assembled, operated and tested before shipment.

D7 Standard paint is machinery enamel over primer coat.

D8 SHIPPING WEIGHT: 50 tons, approximately

E EXPENSES ASSUMED BY THE PURCHASER TO COMPLETE THE DIVERTER/LOADER INSTALLATION:

E1 Freight from Port of Dublin to destination.

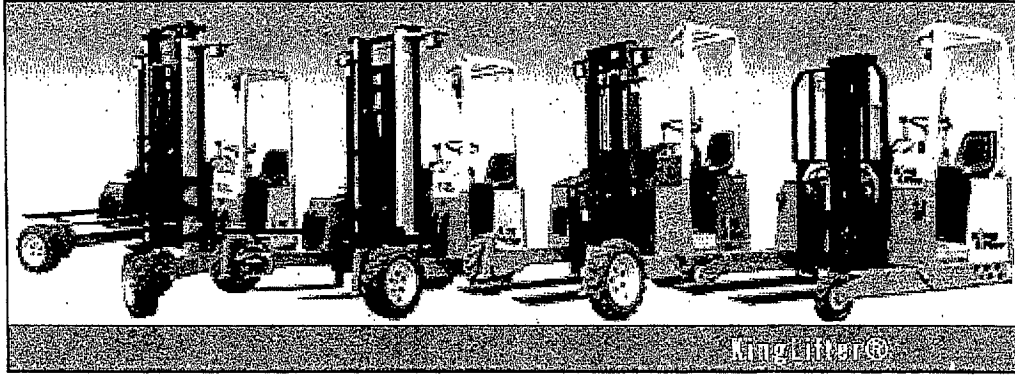
E2 Preparation of foundation which includes pit for trailer docking..

E3 Unloading and assembling of the Diverter/Loader.

E4 Reconnection of wiring between junction boxes.

F LIMITED WARRANTY:

This machine is covered under Harris warranty (HWMG, Inc.990101W-Std) which is attached



**KingLifter the truckmounted forklift for all uses.
Adaptable to several hoist systems.**

The KingLifter offers:

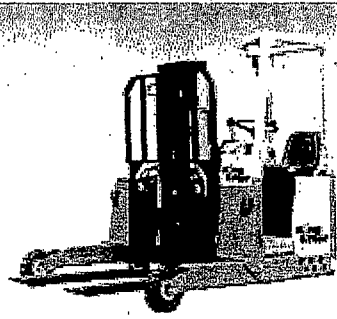
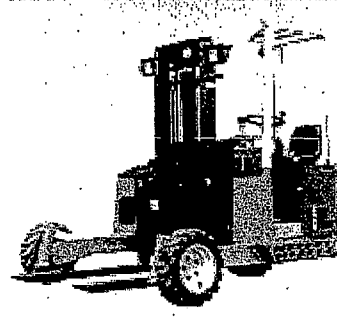
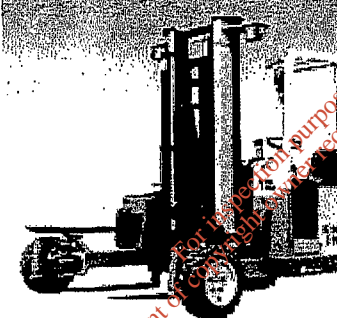
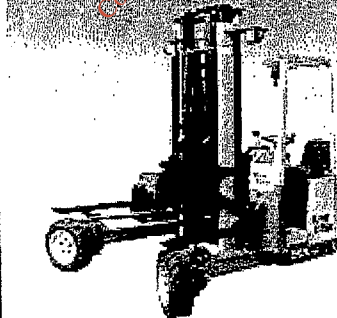
- A loading and unloading system for your vehicle
- Independent transport
- Up to 30% time saving
- Up to 35% increased sales per truck possible
- A means to provide service when and where needed
- Stronger ties with your customers
- Less risk of damaging your freight
- Better employment conditions for your driver

Successfully used in many settings:

- Transporting beverages
- Transporting building materials
- Agriculture and horticulture
- Chemicals and waste collection
- Petrochemical products
- Public works
- Transporting glass
- Transporting steel
- Internal transport
- Long loads

Additional Information:

- The machines are available in three basic dimensions
- One-wheel or three-wheel drive for rough terrain or ramps
- Also available as four-way for long loads
- All models are available with retractable front legs
- A complete range of lifting masts with various capacities and lifting heights
- A wide range of wheels and tyres
- Power steering, parking brake and complete lighting system supplied as standard
- Low weight
- The driver is seated completely within the contours of the machine
- Complies with all EU Directives and Regulations
- Stainless steel plating
- Height-adjustable seat and floor
- Seat within the contours of the frame
- Chainless masts (maintenance free)
- All parts standardised
- Special preferences negotiable

KingLifter truckmounted forklift truck models available	
	<p>The smallest with the lowest self-weight !</p> <p>Model TKL-S</p> <p>diesel engine: 18 hp 1-wheel hydraulic drive lift capacity: 1,500 kg</p> <p>Download brochure TKL-S</p>
	<p>The standard truck for everyone !</p> <p>Model TKL-M</p> <p>diesel engine: 25 hp 1-wheel hydraulic drive lift capacity 2,500 kg</p> <p>Download brochure TKL-M</p>
	<p>The rough-terrain truck for the specialist !</p> <p>Model TKL-L</p> <p>diesel engine: 35 hp 3-wheel hydraulic drive lift capacity 2,500 kg</p> <p>Download brochure TKL-L</p>
	<p>An option for all models</p> <p>The combination of front and side forklift</p> <p>Option 4W</p> <p>Download brochure TKL-4W</p>

Statement of Compliance is required for any other use.



99 kW

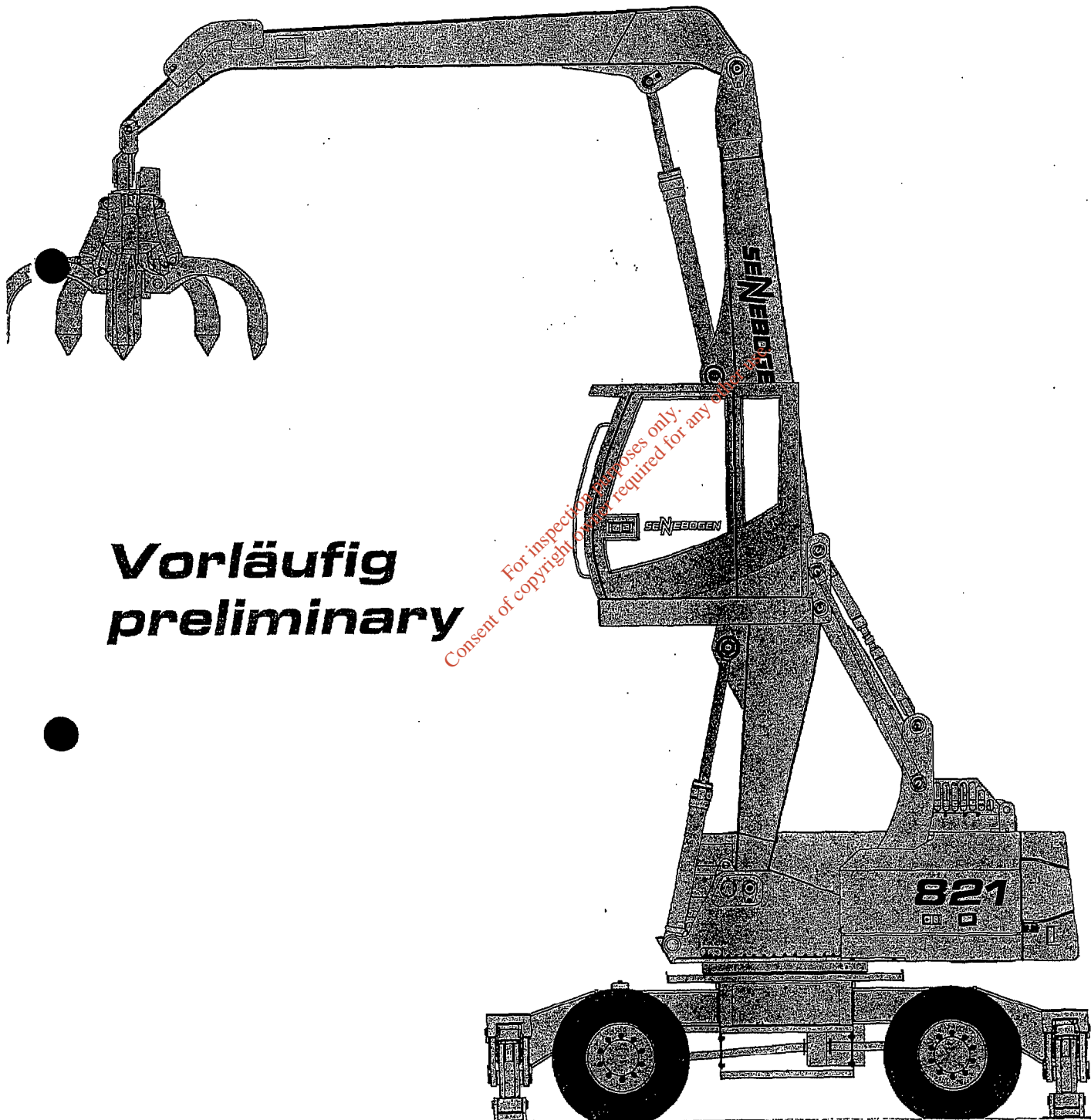


22,0 t

821 M

Serie C

green line Materialumschlaggerät
green line Materials Handling Machine



Vorläufig
preliminary

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SENEBOGEN[®]

green line

- Action radius up to 13.2 m
- Engine output up to 99 kW (135 HP)
- State of the art load-sensing hydraulic-system
- Robust, very service-friendly design
- Very low noise emission

Specifications

Engine

Deutz Diesel engine BF4M1013C, with direct injection, water cooled. Output as per DIN/ISO: 99 kW (135 HP) at 2200 rpm.

Hydraulic driven ventilator, from the diesel engine separated water- and inter-cooler, counter rotation mode for the ventilator cleaning the cooler (optional). Dry air filter with cyclone prefilter, safety element and pollution indicator.

Fuel tank capacity: 300 l
Electric system 24 Volt
2 highly efficient cold starting batteries.

Hydraulic System

Load-sensing hydraulic-system. The variable displacement piston pumps are equipped with pressure cut-off function and with a energy-saving flow-on-demand control. Through the independent and proportional feed of the oil flow all working functions can be operated parallel, independent and very precisely. High efficiency through well designed hydraulic valves and lines. Individual and precise swing operation.

Flow rate 1 x 310 l/min.
Working pressure max. 350 bar
Hydraulic tank capacity 250 l.

Hydraulic oil filter with long time change interval.

Healthy oil temperature through high dimensioned hydraulic oil cooler.

Central service board for easy and rapid check of complete hydraulic-system.

Servo joy sticks for operating movements and additional functions as per ISO-System.

Swing System

Axial piston motor, spring-loaded hydraulically releasable multiple-disk brake, planetary gear and pinion shaft. Large dimensioned swing bearing. Swing speed 0 - 8 rpm, infinitely controllable.

Hydraulic motor with integrated hydraulic brake valves for reduction of wear in braking system to a minimum.

Undercarriage

Undercarriage welded as rigid, torsion-free box-type design. Integrated 4-point outriggers. Tires: 8 x 10.00-20 new tires or optional 8 solid rubber tires 10.00-20. All wheel drive via variable hydraulic motor with directly mounted automatic brake valve and 2-stage-powershift-gear. 36 t HD special axes.

2-circuit servo brake system with additional safety brake as parking brake. Steering axle as hydraulically controllable oscillating axle. Oscillating axle cylinder with safety check valves
0 - 5.4 km/h off road
0 - 20 km/h on road.

Upper Structure

Torsion-free upper frame with continuous bearing-plates for optimal power introduction, precision machined. Steel-bushes for the boom pivot. Lockable storage compartment. Excellent design. Very low noise emission.

Operator's Cab

Comfortable F 2000 operator's cab, resiliently mounted, with exceptional sound suppression, large-capacity compartment with excellent allround visibility, all-weather design with tinted safety glass, front windscreen with ventilation position stows under the roof, large-size skylight, window wiper/washer system for front windscreen and skylight, front guard panel, large-capacity stowage rack, ergonomically designed comfortable seat, resiliently mounted, adjustable in suspension and height, seat cushion adjustable in depth and angle, adjustable lumbar support, wide adjustable armrests, clearly laid out instrument panel with ergonomically shaped control levers, adjustable steering column, infinitely variable cab heating system, outside air and circulating air stages, with particle filter.

Five adjustable air vents for optimum work environment, new SDS diagnostic system for monitoring of all essential machine and engine functions, includes visual and audible warning of any malfunctions.

Working Equipment

Box-type design with large dimensioned bearings for long working-life, in sealed and protected version. Working-cylinder with hydraulic end position damping. Optimated kinematics for high lifting capacities. The material-handling equipment has been specially designed for the increased requirements of high-performance operation.

Service Weight

821 M basic machine with 4-point outriggers, material handling boom and orange peel grab 400 l:

approx. 22,000 kg

The given weights may vary with different equipment.

green line Materials Handling Machines

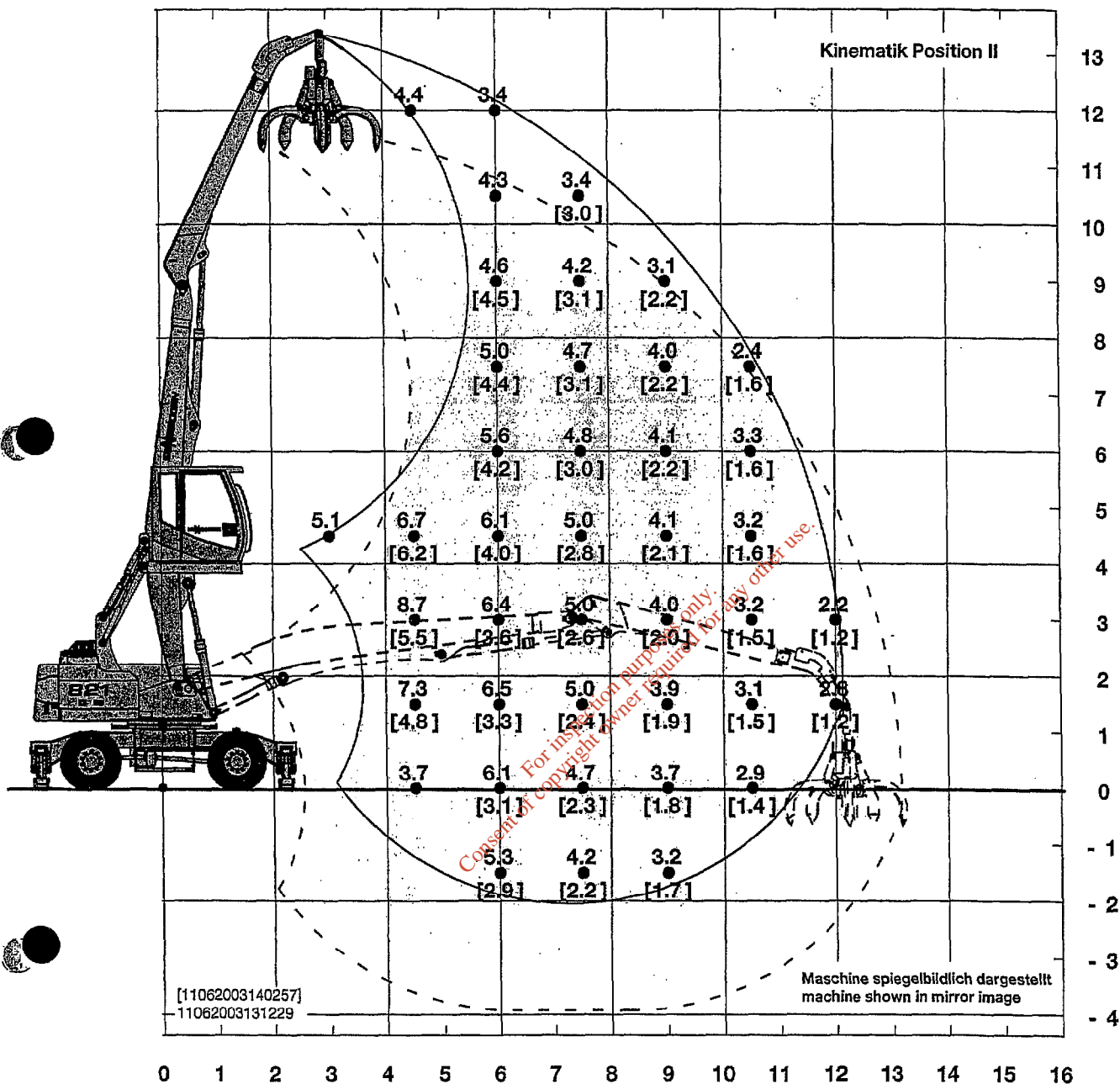
Man and machine as a successful synthesis.

The new green line generation unifies especially:

- Robust design
- High handling performance
- Efficiency
- Easy servicing
- Super comfort cabine F2000 with diagnostic system-SDS
- Super sound insulation
- Functional design

Certification according to CE regulations

Ahead through Innovation



821 M

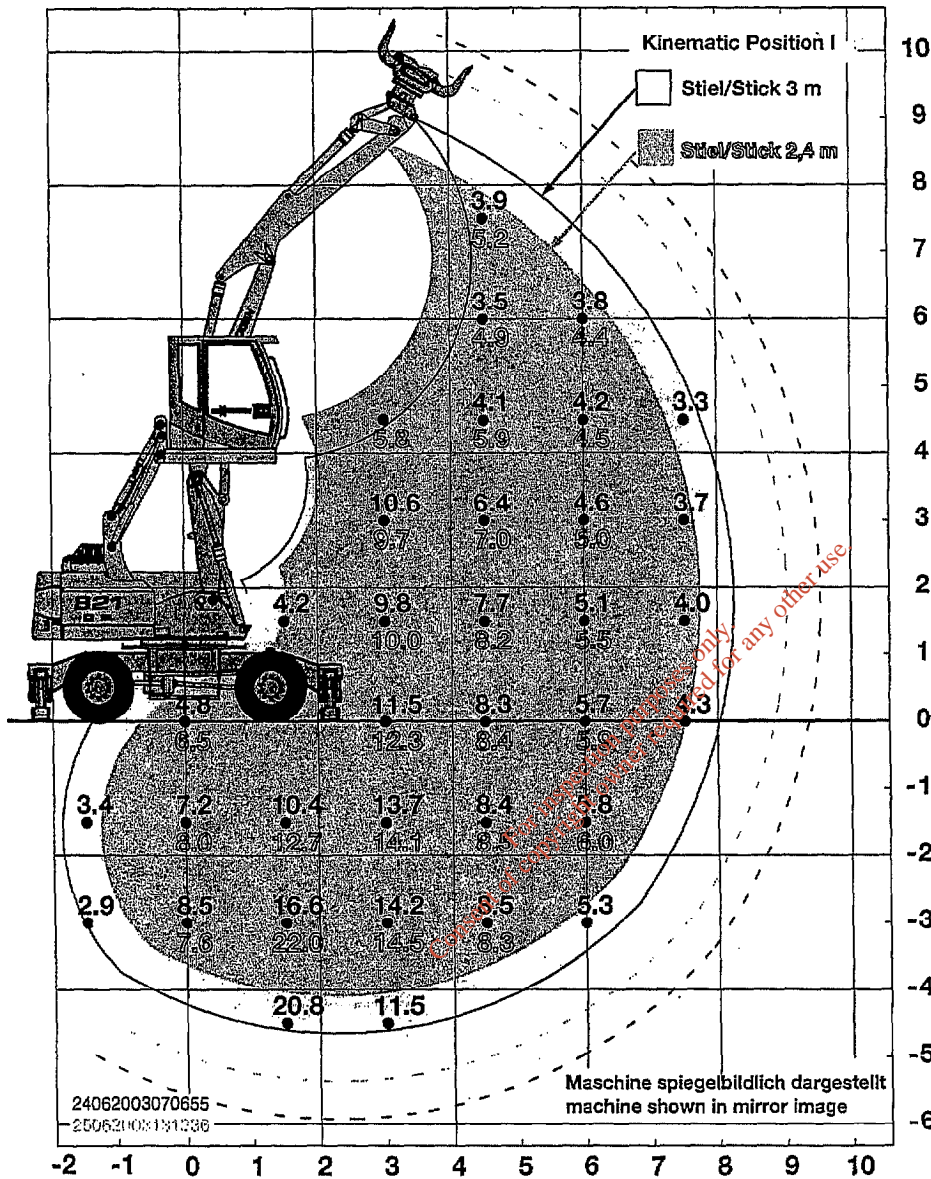
- ☒ Unterwagen: MP21, 4-Punkt-Abstützung
Bereifung 8 x 10.00-20
- ☒ Kompaktausleger: 7,1 m
- ☒ Ladestiel: 5,1 m
- ☒ Kinematikposition: II
- ☒ Kabine: um 2700 mm hochfahrbare
Kabine Typ C 270

821 M

- ☒ Undercarriage: MP21, 4-point outriggers
tires 8 x 10.00-20
- ☒ Compact boom: 7.1 m
- ☒ Loading stick: 5.1 m
- ☒ Kinematic position: II
- ☒ Cab: 2700 mm elevating cab
type C 270

Load chart

Notes:
Lifting capacities are stated in metric tons. Indicated loads are based on ISO 10567 and do not exceed 75 % of tipping and 87 % of hydraulic capacity.
Line on firm, level supporting surface. Loads valid for 360° on outriggers supported.
Loads in brackets [...] are valid 360° free on wheels.
Working equipment like orange peel grab, magnet plate etc. are part of the lifting capacity.



821 M

- ☒ Unterwagen: MP21, 4-Punkt-Abstützung
Bereifung 8 x 10.00-20
- ☒ Hydraulisch verstellbarer 3 teiliger Ausleger
- ☒ Stiel: 2,4m / 3m mit Umlenkmechanismus
- ☒ Kinematic position: I
- ☒ Kabine: um 2700 mm hochfahrbare
Kabine Typ C 270

821 M

- ☒ Undercarriage MP21, 4-point outriggers
tires 8 x 10.00-20
- ☒ hydraulically adjustable 3-piece boom
- ☒ Stick: 2.4m / 3m with reversing mechanism
- ☒ Kinematic position: I
- ☒ Cab: 2700 mm elevating cab
type C 270

Load chart

Notes:

Lifting capacities are stated in metric tons. Indicated loads are based on ISO 10567 and do not exceed 75 % of tipping and 87 % of hydraulic capacity.

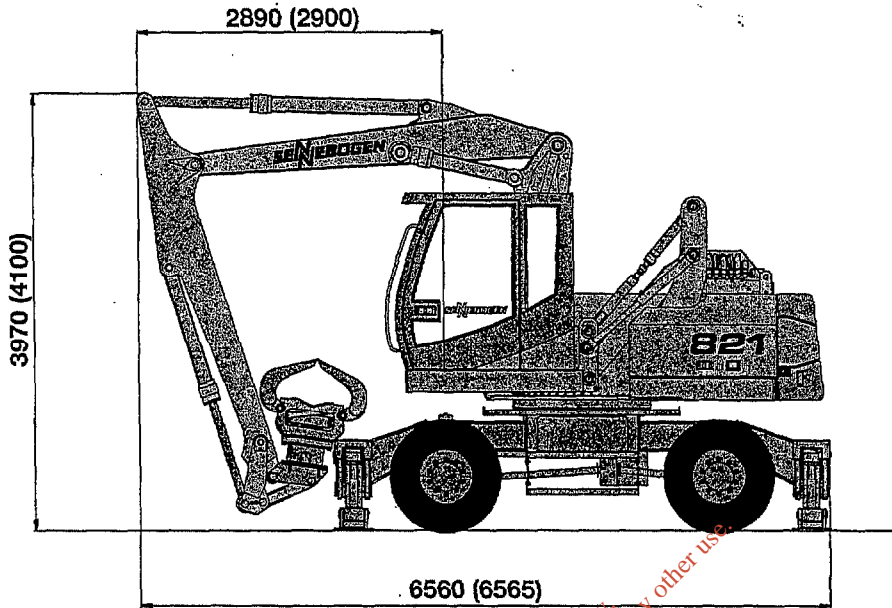
Machine on firm, level supporting surface. Loads valid for 360° on outriggers supported.

Loads in brackets [...] are valid 360° free on wheels.

Working equipment like orange peel grab, magnet plate etc. are part of the lifting capacity.

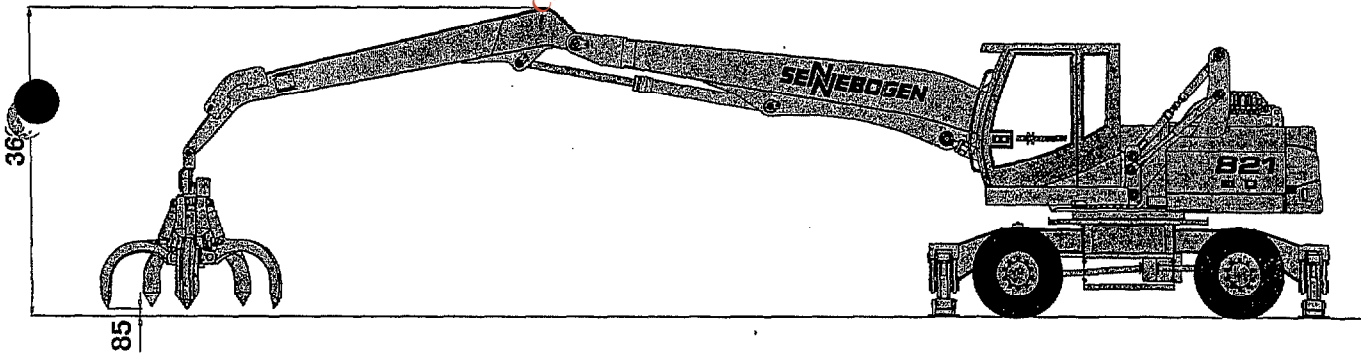
With attached reversing mechanism, the rated loads have to be reduced by approx. 250 kg.

Straßenfahrt / road travel



Die angegebenen Maße gelten für Stiel 2,4 m, die Maße in Klammern () für Stiel 3 m
 The dimensions are valid for Stick 2,4 m, the dimensions in Brackets () are valid for Stick 3 m

Durchfahrtshöhe / vertikal clearance

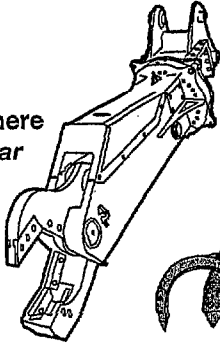


Ausleger / Boom 6,4 m, Stiel/Stick 4,8 m

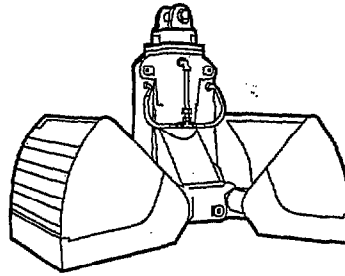
Arbeitsgeräte

Working Attachments

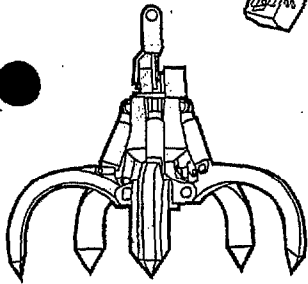
Schrottschere
Scrap Shear



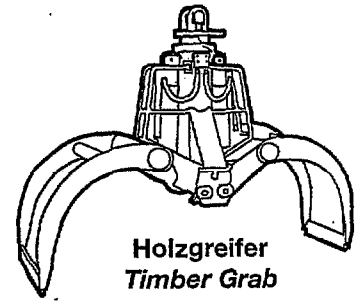
Schüttgutgreifer
Rehandling Grab



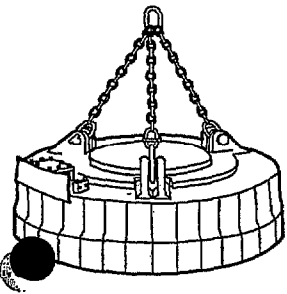
Mehrschalengreifer
Orange Peelgrab



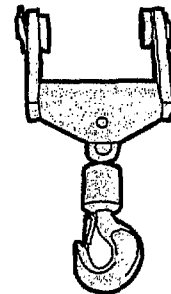
Holzgreifer
Timber Grab



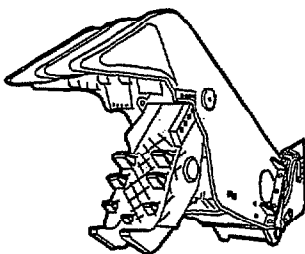
Magnetplatte
Magnet Plate



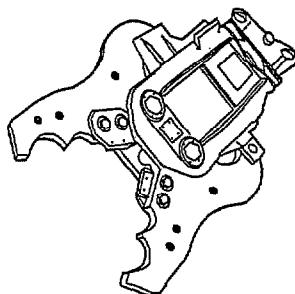
Lasthaken
Hook



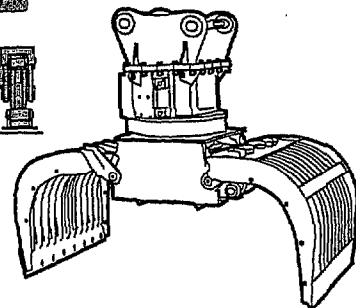
Betonpulverisierer
Concrete Crusher



Betonbeißer
Concrete Cutter



Sortiergreifer
Sortation and
Demolition Gripper



For inspection purposes only.
Consent of hydraulic manufacturer required for any other use.

