


<b>Property of Oil Spill Response</b>  	<b>Document Title</b>  <b>Logistics Planning Guide Global Dispersant Stockpile</b>	<b>Document Number</b> <b>OSRL-OPER-PLA-00903</b>	
		<b>Revision</b>	<b>12</b>




# Logistics Planning Guide

## Global Dispersant Stockpile


### REVISION HISTORY

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7	01/07/2018		Dave Redington	Ian Midgley	Paul Foley
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12	26/06/2023	Vatry Screening Process	Sam Macdonald	Dave Redington	Øistein Dahlslett

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## 1 Introduction

### 1.1 Disclaimer

The information contained within this document is for guidance and is correct at time of writing. During an exercise or emergency response, all information should be verified with OSRL to ensure the latest information is used for the mobilisation and onwards transportation of equipment.

### 1.2 Service Level Agreement

Oil Spill Response Limited (OSRL), together with its Affiliates is an industry owned and funded joint initiative, providing industry with the capability to better respond to incidents world-wide.

Through its relevant Affiliate companies (OSRL, together with its Affiliates shall hereafter be referred to as “OSRL”), OSRL provides the industry with the equipment, expertise, and capability to better respond to incidents globally.

Oil Spill Response Dispersant Limited (OSRDL) is an Oil Spill Response Ltd (OSRL) supplementary service, supporting the Global Dispersant Stockpile (GDS). GDS is an industry owned and funded joint initiative providing GDS members with the capability for both surface, subsea and dispersant application incidents.

### 1.3 Notification and Callout


Any component of the GDS equipment must be mobilised via the Southampton (UK), Singapore or Americas branches. All three locations are manned 24 hours/day to ensure your call is dealt with directly. During out of office hours, the operator will contact a Duty Manager (DM).



Figure 1: Activation Procedure Card

In the event of an Incident where the Well Owner / Incident Owner (WO / IO) is considering mobilising the GDS, OSRL should be notified immediately using the telephone numbers shown above and providing the basic information listed;

- Initial contact person - Telephone, fax, and email information
- Location, source, and time of spill

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- Weather
- Company – Address, telephone, fax number etc
- Oil volume of the spill
- Oil type and Characteristics

The following steps will then need to be followed, the OSRL DM will;

- Call back within 10 minutes (24 hours / day)
- Have extensive response experience
- Have access to a wide range of planning and predictive tools
- Act as the initial primary point of contact for the WO / IO
- Verify that the caller is a subscriber to the GDS service

The initial discussion between the OSRL DM and WO / IO will include;

- Scenario of spill
- GDS assets required
- Location GDS assets to be mobilised from
- Transportation mode (air / sea / land)
- Special logistics / permits required for mobilisation
- Additional oil spill response equipment required


The OSRL DM will forward the following documentation to the WO / IO based on the conversation above. The WO / IO will need to complete the following paperwork. Signatures are required, so paper copies are used.

- Notification Form (OSRL-OPER-FOR-00173 Rev9<sup>1</sup>), can be found on OSRL Website or DM will send after initial phone call)
- Mobilisation / Authorisation Form (OSRL-OPER-FOR-00172 Rev8<sup>1</sup>), can be found on OSRL Website or DM will send after initial phone call)
- Ensure full execution of Total Energie Fluides and Nalco end user indemnities (details available internally in 'call outs and contacts')

The mobilisation of equipment will continue as described in this document (Logistics Planning Guide – Global Dispersant Stockpile - OSRL-SW-PLA-00001), with continued communications between OSRL and the WO / IO, but the 'Notification' process as described above, has been completed. OSRL will ensure that the communications flow shown below in **Figure 2**, is followed:

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<sup>1</sup> Revision numbers referenced in the document are the latest at the time of publication. During a mobilisation the Revision number of documents sent to the WO/IO may be higher than that shown here BUT should never be lower

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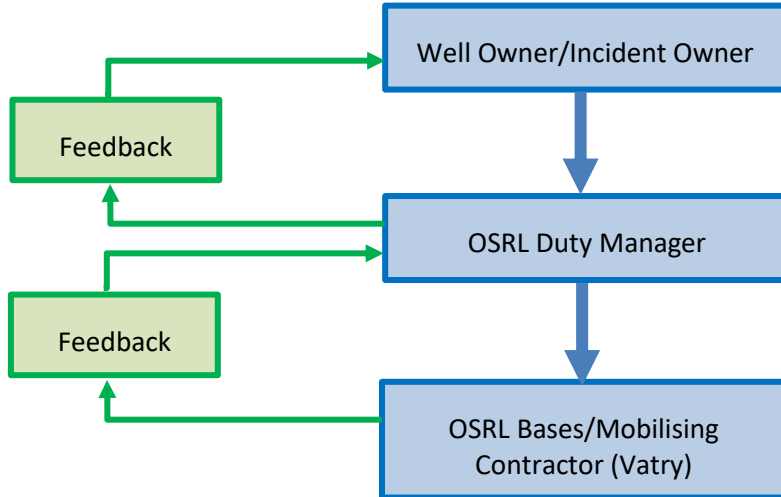


Figure 2: Communications Flow

**1.4 Purpose**

This Logistics Planning Guide (LPG) is an aid to the planning and understanding of the processes for the mobilisation and initial deployment phases of the GDS. This helps to ensure that operational logistics capability is delivered on time, in the right quantity and correct configurations, in a fully serviceable condition and crucially, to the right location. The guide covers details of the following:


- Equipment storage
- Storage medium (IBCs and Going Away (GA) box)
- Potential transport methods (air, road, and sea)
- Logistical, export and selling procedures
- Handling requirements
- Documentation
- Re-supply
- Lines of responsibility

**1.5 Audience**

The LPG is designed to be a simple to use, ready reference document for use by OSRL Response and Logistics staff and WO / IO’s Logistics staff, whilst also providing a structured overview for management.

**1.6 Global Dispersant Stockpile (GDS) Overview**


OSRDL owns, stores, and maintains the dispersant and associated support equipment (Equipment) in a response ready state, providing the WO / IO with readily available Equipment, freight and logistical support and technical support when required.

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5000m<sup>3</sup> of dispersant and associated support equipment is pre-positioned in five locations across four continents. The Equipment is transportable by road, air, and sea for deployment. Any GDS member may request 100% of the stockpile at any time.

**Key facts:**

- 5000m<sup>3</sup> of three dispersant types located at five strategic locations
- This amount is estimated to provide the GDS member with 30 days' supply, based on data gathered from the Macondo spill subsea dispersant usage rate of 160m<sup>3</sup> per day
- Total of 6 x GA Boxes (1 at each Primary storage location) containing associated support equipment
- 100% of the stockpile can be mobilised for a single incident
- Dispersant types in the GDS are those with the most worldwide approval
- Any member of OSRL can subscribe to the GDS via a supplementary agreement and execution of supplier end user indemnities
- The WO / IO has full responsibility for the regional approval and application of the dispersant, however OSRL will assist where required
- The stockpile can be used with the Subsea Well Intervention Service (SWIS) dispersant toolkit
- OSRL will arrange stockpile resupply as soon as dispersant has left the storage warehouse (Primary Storage)
- WO / IO is responsible for insurance and freight from Primary Storage, OSRL will assist if required
- The Equipment is a sale to the WO / IO on mobilisation from the Primary Storage

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## 2 Mobilisation

### 2.1 Storage Locations cxv

The GDS stockpile locations can be seen in **Figure 3** below. Additional location and contact information can be found in **Table 1**.




Figure 3: Map of Stockpile Locations


Table 1: Information on Stockpile Locations

Country	Address	Type and Volume	Notes
Singapore	OSRL Singapore Loyang Offshore Supply Base 25C Loyang Crescent Mail Box No 5105 Block 503 TOPS Avenue 3 Singapore 506818	Slickgone NS 350 m <sup>3</sup> 92,750 US Gal	Primary Storage is in close proximity to Singapore Changi Airport. The Singapore Response Department have the responsibility of mobilising the Equipment. Loading for sea transport can be carried out via the jetty at Loyang Offshore Supply Base near to the OSRL site. There is a retainer road freight contract with TOPS to provide 2 x 40' flatbed trailers within one hour, then prime movers with two hours.
		Finasol OSR 52 350 m <sup>3</sup> 92,750 US Gal	Singapore Changi Airport is located on the east coast of Singapore. The airport has excellent connection by road to all parts of the island. The density of traffic at peak times can cause delays. There are two cargo handlers that operate within the Changi Airport Cargo Complex. They are DNATA and SATS.  <b>Airport Technical Information:</b>




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Country	Address	Type and Volume	Notes
			<p><a href="https://www.world-airport-codes.com/singapore/changi-international-6919.html">https://www.world-airport-codes.com/singapore/changi-international-6919.html</a></p> <p><b>Contact Details:</b> <a href="#">Singapore - Changi Airport Group (Singapore) Pte Ltd - AZFreight</a></p> <p>Loyang Offshore Supply Base is strategically positioned in key transport areas, as well as maritime access to South China Sea. Loyang jetty and wharves are located in sheltered waters and have eleven quaysides for vessels and can accommodate vessels of various lengths. Water depth of the quaysides ranges from 7 – 9.5m to allow for larger vessels to come along side. There is a full complement of logistics support equipment available on site.</p> <p><a href="http://www.topsloyang.com/index.htm">http://www.topsloyang.com/index.htm</a></p>
<b>France</b>	Urgent.expert Veolog Bat2 Rue Henri Guillaumet 51006 Chalons en Champagne France	Finasol OSR 52 2000 m <sup>3</sup> 530,000 US Gal Slickgone NS 500 m <sup>3</sup> 132,500 US Gal	<p>Primary Storage is located 0.7 miles from of Vatry commercial airport.</p> <p>Vatry Airport is a commercial airport serving Châlons-en-Champagne district in north-eastern France. It is 147 km (91 mi) from the centre of Paris.</p> <p>VEOLOG own and run the warehouse within the airport complex of Vatry airport. It has good road access (2 km to motorway) and parking for deliveries both inside the compound and on the access road outside the compound. OSRL has a service level agreement with Urgent Expert, located within the airport complex, to arrange both personnel for loading and transport for either road freight or delivery to the airport within two hours.</p> <p>In the event the French Civil Aviation Authority (DGAC) do not deem an operation to be an 'Urgent Mission', there will be a requirement for the dispersant to be screened prior to onward airway transport. This process involves air sampling of the loaded trailer's atmosphere before subsequent K9 analysis. The current process is outlined in Figure 19.</p> <p><b>Vatry Airport Technical Information:</b> <a href="https://www.world-airport-codes.com/france/vatry-international-8059.html">https://www.world-airport-codes.com/france/vatry-international-8059.html</a></p> <p><b>Contact Details:</b> <a href="#">Paris Vatry Airport - AZFreight</a></p> <p><b>Charles De Gaulle Airport Technical Information</b></p>

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Country	Address	Type and Volume	Notes
			<a href="https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html">https://www.world-airport-codes.com/france/charles-de-gaulle-5672.html</a>  <b>Contact:</b> <a href="#">Paris - Charles De Gaulle Airport - AZFreight</a>  <b>Le Havre Port</b> Tel. +33.(2).35c52.54.56 - Fax +33.(2).35.52.54.13
<b>South Africa</b>	OSRL South Africa 7 Sycamore Crescent Atlas Gardens Cape Town South Africa	Finasol OSR 52 800 m <sup>3</sup> 212,000 US Gal	Primary Storage is near a variety of ports, the major highway, and Cape Town International Airport. The warehouse is unmanned but OSRL personnel can be at location within two hours. There is a Memorandum of Understanding (MOU) with Teemane Freight who will provide flatbed trailers and drivers to the location at short notice.  <b>Cape Town International</b> Airport (IATA: CPT, ICAO: FACT) is the primary airport serving the city of Cape Town. It is located approximately 20 kilometres from the city centre.  <b>Airport Technical Information:</b> <a href="https://www.world-airport-codes.com/south-africa/cape-town-international-1251.html">https://www.world-airport-codes.com/south-africa/cape-town-international-1251.html</a>  <b>Contact Details:</b> <a href="#">Cape Town International Airport - AZFreight</a>  <b>Port of Cape Town</b> <a href="http://www.transnetnationalportsauthority.net/OurPorts/Cape%20Town/Pages/Overview.aspx">http://www.transnetnationalportsauthority.net/OurPorts/Cape%20Town/Pages/Overview.aspx</a>
<b>Brazil</b>	ZIRANLOG ARMAZÉNS GERAIS E TRANSPORTES LTDA Rua do Alho 1.129 A Penha Circular Rio De Janeiro	Corexit EC9500A 500 m <sup>3</sup> 132,500 US Gal	Primary Storage is with ZIRANLOG ARMAZÉNS GERAIS E TRANSPORTES LTDA, a large transport and storage provider. OSRL has a dedicated section of warehouse within the larger logistics complex in Rio de Janeiro. ZIRANLOG will arrange loading of the flatbed trucks and deliver to the required destination. OSRL Brazil staff are required to arrange the Nota Fiscal, a requirement to permanently export Equipment from Brazil. Contact details are:  Brasil Serviços de Contenção de Vazamento de Petróleo Ltda  Praça Lopes Trovão s/n Parte I   Porto de Angra dos Reis   CEP 23900-490   Rio de Janeiro   Brasil    <b>Telephone:</b> +55 24 3421-5481  <b>INTERNATIONAL AIRPORT GALEAO (GIG)</b>

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Country	Address	Type and Volume	Notes
			<p>GIG airport is located 20 km north of central Rio de Janeiro. The airport is operated by Infraero; it is the largest airport site in Brazil. It should be noted that GIG airport cannot currently load/unload cargo exceeding 20 metric tonnes to/from a Boeing 747 400 aircraft.</p> <p><b>Technical Information:</b></p> <p><a href="https://www.world-airport-codes.com/brazil/galeoantonio-carlos-jobim-international-6296.html">https://www.world-airport-codes.com/brazil/galeoantonio-carlos-jobim-international-6296.html</a></p> <p><b>Contacts:</b></p> <p><a href="#">Airport Galeão (GIG) of Rio de Janeiro (kkfreight.com)</a></p> <p><b>PORT OF RIO DE JANEIRO</b></p> <p><a href="https://www.searates.com/port/rio_de_jan_eiro_br.htm">https://www.searates.com/port/rio_de_jan_eiro_br.htm</a></p> <p>Port contact details: 2219-0542</p> <p><b>NITEROI PORT</b></p> <p><a href="https://www.searates.com/port/niteroi_br.htm">https://www.searates.com/port/niteroi_br.htm</a></p> <p>Port contact details: 55 21 2718 3182</p>
USA	2345 Stirling Rd Fort Lauderdale FL 33312 USA	Corexit EC9500A 500 m <sup>3</sup> 132,500 US Gal	<p>Primary Storage is near a variety of ports, the major highway, and Miami International Airport. The warehouse is supported by the staff of the Fort Lauderdale base response staff. There area has abundant freight suppliers.</p> <p>Miami International Airport is the primary airport serving the South Florida area. The airport is eight miles (13 km) northwest of Downtown Miami.</p> <p><b>Airport Technical Information:</b></p> <p><a href="https://www.world-airport-codes.com/united-states/miami-international-4698.html">https://www.world-airport-codes.com/united-states/miami-international-4698.html</a></p> <p><b>Contact Details:</b></p> <p><a href="#">Miami International Airport - AZFreight</a></p> <p>Port Everglades</p> <p><a href="https://www.porteverglades.net/">https://www.porteverglades.net/</a></p> <p>Port contact details: +1 954 523 3404</p>

## 2.2 General Considerations

GDS Equipment will be mobilised from the most appropriate Primary Storage location depending on the incident location, dispersant type and / or quantity required by the WO / IO. In most circumstances the

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Equipment will be mobilised by road then air, using either chartered cargo aircraft or on scheduled flights where possible. If requested, OSRL will deliver the Equipment to the point of entry of the required country.

Road freight followed by sea freight is also an option, depending on timelines. OSRL will deliver to the designated port of the required country.

The following should be considered when mobilising the Equipment:

- Which is the nearest Equipment stockpile to the incident area?
- What is the time differential between mobilisation by air, mobilisation by sea or mobilisation by road?
- How much time is required to initially mobilise the required vehicles / vessels / aircraft?
- What are the local documentation requirements for customs and other in country agencies (packing lists, pro-forma, certification and fumigation certificates, cargo tracking notes or translations etc.)?
- Are load plans, lift plans, transportation plans, vehicles, cranes etc. in place for the transportation of the Equipment by air, sea, and road in the incident country?
- What information needs to be communicated to in country authorities (i.e. customs agencies, national police, and environment agencies) regarding the arrival of the Equipment?
- Are there robust procedures in place for tax or importation?
- Are there WO / IO representatives available at receiving airports and ports?


The Primary Storage warehouse/s will be restocked with replacement Equipment from the relevant suppliers as soon as possible following mobilisation by the WO / IO. The replacement Equipment costs as well as associated freight delivery of the replacement Equipment to the warehouse will be chargeable to the WO / IO.

For cost budget information, the GDS dispersant approximate replacement costs from the supplier, as of October 2020, are listed in **Table 2** below.

**Table 2: Equipment Replacement Cost<sup>2</sup>**

Equipment	Cost per IBC/item (USD)	Quantity in Global Stockpile	Total Cost in Global Stockpile (USD)
Slickgone NS	\$ 6,400.00	850	\$ 5,440,000.00
Finasol OSR52	\$ 7,800.00	3150	\$ 24,570,000.00
Corexit EC9500A	\$ 11,800.00	1000	\$ 11,800,000.00
GA Box	\$ 6,600.00	6	\$ 39,600.00

<sup>2</sup> This is true at the time of writing. Updates to this will be included in the subsequent LPG versions. Please seek OSRL DM's discretion.

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		<b>TOTAL</b>	<b>\$ 41,849,600.00</b>
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**2.3 Member Financial Standings**

In accordance with the GDS Supplementary Agreement, all members subscribed to the GDS service are required to provide evidence that they meet the financial standing criteria as defined in the agreement. If OSRL has not received the appropriate evidence as stipulated in the agreement (7.6.3), OSRL will require upfront payment for all Dispersant before permitting its mobilisation. It is OSRL’s recommendation that, where possible, GDS subscribers provide suitable evidence to demonstrate their financial standing in order to avoid potential delays during a mobilisation.

It is the WO / IO’s responsibility to obtain/provide the financial rating. The rating may be from any one of the listed sources below:

- a "Long-Term Issuer Default Rating" of BBB- or better from Fitch, Inc.;
- a "Foreign Long-Term Issuer Credit Rating" of BBB- or better by Standard & Poor's Financial Services LLC; or
- a Long-Term Issuer Rating of Baa3 or better by Moody's Investors Services, Inc


It is important to note that “the Client” (being the legal entity that has entered into the GDS Supplementary Agreement) must provide evidence of the financial rating in its own right unless an appropriate guarantee has been provided as per the definition of a Security within the Supplementary Agreement. Where an appropriate guarantee has been provided the financial rating may be that of the guaranteeing entity.

All GDS members are requested to provide their financial rating in accordance with Clause 7.6.1.

**2.4 Task completed by OSRL for all equipment during a mobilisation**

In accordance with the GDS supplementary agreement, OSRL will arrange the loading of the Equipment ready for initial road freight. It is the WO / IO’s responsibility to insure and freight the Equipment from the Primary Storage location, to either a temporary secondary storage location or onward to the WO / IO’s incident location. However, OSRL has relationships and some road freight retainer agreements with regional freight companies and can assist and arrange freight to the nominated delivery point (NDP), which may be either an airport of embarkation (APOE) or seaport of embarkation (SPOE), or direct to the WO / IO’s location if requested.

- Provide a focal point to support the WO / IO and any ongoing operations 24/7
- Supply the shipping and customs documentation as required for the incident destination whether by road, sea, or air from the storage locations
- If required, assist with initial road transport to mobilise the Equipment to the nominated airport or port
- If required, provide transport routes, timings, and costs

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- In the event of a large incident, OSRL will manage the Dispersant Logistics Plan in order to monitor dispersant freight movements, deliveries and usage at the incident location so adequate dispersant is available to the WO / IO at the incident
- OSRL will organise the resupply of purchased dispersant back to the Primary Storage location
- Manage OSRL’s Global Dispersant Inventory (alternative global stockpiles) and contact regional dispersant stockpile owners in order to potentially purchase and/or temporarily use alternative dispersant stockpiles if a high demand continues

If requested by the WO / IO, OSRL will ensure that the required equipment is mobilised to the NDP, which may be either an APOE or SPOE as agreed with the WO / IO. Upon notification from the WO / IO, OSRL will start working with our cargo charter brokers to identify suitable methods to mobilise the requested Equipment. Any costs and routings will be confirmed with the WO / IO in writing prior to mobilisation.

## 2.5 Documentation – UK/Singapore/France/South Africa/North America

OSRL will prepare the following documentation (in English) as part of standard procedures:

- Packing lists
- Pro-forma/Commercial/Customs invoices as required
- Load summary
- Safety Data Sheets (SDS)

If Certificates of Origin or any translations are required, they can be applied for by OSRL however this may cause delays.


## 2.6 Documentation – Brazil

The standard procedures for mobilisation of the GDS held in Brazil are more complex, depending on whether it is required for internal or external use:

### 2.6.1 Selling Procedure

Refer to “Internal Selling Procedure for Dispersants Brazil Document Number OSRL-OPER-PRO-01012” for full selling details. It is responsibility of OSRDB (Oil Spill Response do Brasil Armazenamento e Distribuição de Dispersantes Ltda) to issue all documentation required during the event of selling Equipment in Brazil. It is responsibility of the WO / IO to provide all the necessary information to guarantee accuracy of the documentation.

For the sale of Equipment within the State of Rio de Janeiro, OSRDB must use the code **CFOP 5102**, which applies for the “sale of goods purchased or received from third parties”. For such sale transaction, the applicable ICMS tax rate is 20%, (18% plus 2% of FECP). FECP is a state government additional levy.

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For the sale of Equipment outside the State of Rio de Janeiro, OSRDB should use the code **CFOP 6102**, which applies for the “sale of goods received or purchased from third parties to other States”. In this case, the applicable ICMS tax rate for interstate transaction to any state will be either 7% or 12% as directed – where the calculation basis will be the value of the products added by 5% of IPI and the difference of the ICMS rate (DIFAL).

### 2.6.2 Obligations of the WO / IO

According to applicable legislation (Article 15, Annex I of Book VI of RICMS/RJ) the recipient of Equipment should keep the Nota Fiscal Eletrônica (NF-e), otherwise known as a sales invoice, for safe keeping, even when kept outside the company, for the period specified by tax legislation for fiscal documentation, making the document available to the tax authorities when requested.

The recipient should verify they are authorized to use the NF-e issued by OSRDB. If the recipient is not accredited to issue NF-e tax invoices as an alternate they can keep on file the Documento Auxiliar de Nota Fiscal Eletrônica (DANFE) related to this NF-e, for submission to the tax authorities when requested.

Refer to “Internal Selling Procedure for Dispersants Brazil Document Number OSRL-OPER-PRO-01012, item 6”, for full obligation details.


### 2.6.3 Exportation Procedure

Refer to “Brazil Exportation Guidelines (Oil Spill Dispersants) Document Number OSRL-OPER-GUI-00940”. It is the responsibility of OSRDB to issue the documentation required for the export of Equipment. It is the responsibility of the WO / IO to provide all necessary information to guarantee the accuracy of the export documentation.

### 2.6.4 Documents required (Information required from OSRL and the WO / IO)

#### a) Pro-forma Invoice - Issued by OSRDB (Fatura Pro-Forma (not required for exercises))

- Full information of the exporter and importer (name, address, CNPJ or equivalent (company registration number)); number of state enrolment, etc.
- Detailed description of the items to be exported (name of the product, quantity, gross weight and net weight, unit price, tariff code (in case NCM 3402.1900)), type of packaging presented for transport, minimum and maximum quantity per shipment, fiscal code
- Date and place of delivery (place of loading/shipment and unloading) and name of the transport company
- Payment condition and its terms
- Manufacturer details – Name and complete address
- Country of Origin
- Period of validity of the proposal “pro-forma”

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- Place for signature of exporter and importer

The pro-forma Invoice is not a mandatory document and may be replaced by a quote submitted by fax or letter containing the same information listed above.

#### **b) Letter of Credit**

The Letter of Credit is **issued by the WO / IO (purchaser)** abroad. It is delivered to OSRDB upon receipt of the Pro-forma Invoice and its purpose is to confirm the interest in purchasing the product. The Letter of Credit should contain the same information as the Pro-forma Invoice. It is not mandatory and may be replaced by a purchase order issued by the WO / IO.

### **2.6.5 Documents of international validity required for loading and shipment of product to the WO / IO**

#### **a) Commercial Invoice (Mandatory to OSRDB)**

The Commercial Invoice is a document **issued by OSRDB** to confirm the international transaction. The Commercial Invoice validity commences with the despatch of the goods from the OSRL's national territory. The Commercial Invoice is essential for the WO / IO to allow customs clearance in the destination country. The Commercial Invoice is one of the main documents required by most customs authorities around the world to release shipping and/or shipments.

The Commercial Invoice is a document of legal character and is subject to international law, in addition of being a fundamental tool between the WO / IO and OSRDB, as it serves to record the business transaction carried out between both parties. It has to be issued in the language of the importer or in English.


#### **b) Packing List (Mandatory to OSRDB)**

The Packing List is a document written in English and issued by OSRDB for the shipment of goods packed in one or more storage media (TEU, crates etc) and containing various types of products. It is necessary for the customs clearance of the goods and provides a line-by-line description for the WO / IO upon arrival in the country of destination. The document is a simple list relating in detail the products to be shipped, as well as the following information:

- Number of documents
- Name and address of exporter and importer
- Date of issuance
- Description of the goods, quantity, unit, gross and net weight
- Places of loading and unloading
- Name of transport company and date of departure
- Quantity of volumes, identification of the volumes in numerical order, type of packing, gross and net weight per volumes and dimension in cubic meters

#### **c) Bill of Lading (BL) or Air Waybill (AWB)**



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The Bill of Lading will be **issued by the Carrier Company** that certifies the receipt of the cargo, the transport conditions, and the obligation of delivering the goods to the addressee contracted, giving it the ownership of the goods. It is, at the same time, the receipt of goods, a contract of delivery and a document of ownership, that constitute a credit title. This document is issued according to the type of transport used, if the shipment will be shipped via sea than the bill of lading will be applied, if the shipment is shipped via air than an Air Waybill (AWB) will be applied. It must clearly identify the type of freight, as well as the form of payment (prepaid or collect).

**d) Certificate of Origin or Certificate of Analysis**

The Certificate of Origin is provided by OSRDB, when required by the country of destination, to be used by the importer to certify the origin of the goods imported. Such documents can assist the WO / IO in obtaining exemption or reduction of any custom duties, as result of provisions in trade agreements or compliance with requirements imposed by the legislation of the country of destination.

**e) Certificate or Policy of Insurance for Transport**

This document is required when the condition of sale involves the purchase of insurance for the goods, for example, the Incoterm CIF. It must be provided by the insurance company before shipment of the goods. OSRL do not normally ship as CIF as either our insurance policies or member insurance policies ensure that OSRL owned goods are insured for transit.

**2.6.6 Documents necessary for shipping, billing and registration with the parties involved in the foreign trade of the Brazilian territory**

**a) Tax Invoice (Nota Fiscal – Brazilian Legal Invoice)**

This step is the **issuance by OSRDB of the internal tax invoice (NF-e)**, which must accompany the products from the OSRDB's facilities until the effective release by the Customs Authorities/Federal Revenue Department of Brazil (RFB). It is the document, which will follow the product during the internal transport from OSRDB's facilities to the port/airport of shipment. The tax invoice **must use the code CFOP 7.102**, which is applicable for sale of goods received or purchased from third parties by an export operation.


**b) DU-E (Declaração Única de Exportação)**

The DU-E is an electronic document issued and filed via Siscomex (foreign trade integration system), which the exporter or their legal representative uses to inform Brazilian customs of the commercial deal, the foreign exchange currency, and the fiscal nature of the export.

The DU-E is issued based on Nota Fiscal (Tax Invoice) information issued to support the exportation, except on situation where legislation exempt the issuance of this document and in cases of exportation based on Nota Fiscal physically issued or without Nota fiscal, and all the required data must be provided by exporter.

**c) Foreign Exchange Contract**

The Foreign Exchange Contract is the **document issued by the commercial bank** in charge of any currency exchange transactions.

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## 2.7 Dangerous Goods

Information is key to any safety program, including for dangerous goods in transport. Through Dangerous Goods Regulations (DGR) and comprehensive training programmes, International Air Transport Association (IATA) and the International Maritime Organisation (IMO) ensure that shippers, forwarders, and carriers have the tools and resources to ship dangerous goods safely.

Compliance with the DGR requires specific training. The successful application of regulations concerning the transport of dangerous goods greatly depend on the appreciation by all individuals concerned of the risks involved and on a detailed understanding of the Regulations. This can only be achieved by properly planned initial and recurrent training programs.

All Equipment has been checked against compliance with the below regulations:


- **ADR** European Agreement concerning the International Carriage of Dangerous Goods by Road
- **ADN** European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- **IMDG Code** International Maritime Dangerous Goods Code
- **IATA DGR** International Air Transport Association Dangerous Goods Code
- **ICAO** International Civil Aviation Organisation Technical Instructions for the Safe Transport of Dangerous Goods by Air.

The dangerous goods note for the outward transport of Equipment will be provided by OSRL where required.

**Table 3: Dangerous Goods in GDS Stockpile**

Type of equipment	DG by Air	DG by Sea	DG by Road	UN ID / shipping name/DG Class	DG Note required	Notes
Diesel Transfer Pump	YES	YES	NO	UN3528 / MACHINERY, INTERNAL COMBUSTION, FLAMMABLE LIQUID POWERED / 3	<ul style="list-style-type: none"> <li>• Yes (Air)</li> <li>• Dependant on complying with Special Provisions (Sea)</li> </ul>	DG Note and hazard label by air, not by sea (SP363 .2) or Road.

Dispersant itself is not classed as a Dangerous Good for transport by road, sea or air and is not regulated as such. However, under ADN regarding transporting by European inland waterways, dispersants are regulated if their flash point is between 60 °C and 100 °C (typically this is the range into which dispersants' flash point falls). Scenarios leading to dispersant transportation on European inland waterways are likely to be very limited. Under the UN classification for transportation, dispersants are categorised as Packing Group III (least danger).

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## 2.8 Safety Data Sheet (SDS)

The SDS information below covers the three types of dispersant currently held by the GDS service. This information was correct at the time of inclusion, but WO / IO can obtain up to date copies of the SDS from OSRL or the dispersant manufacturer. The SDS follows an internationally agreed 16-section format and provides information on chemical products that help users of those chemicals to produce a risk assessment. They describe the hazards the chemical presents, and give information on handling, storage, and emergency measures in case of an accident.




Safety Data Sheets will be provided as appropriate within the GA box and are intended to provide personnel with procedures for handling or working with that substance in a safe manner.


## 2.9 Global Harmonised System (GHS) and Labelling of Chemicals

The United Nations' Globally Harmonised System (GHS) provides a voluntary agreement for the classification and labelling of chemicals. GHS becomes legally binding through a suitable national or regional legal mechanism. GHS not to be confused with Harmonised Systems Codes (HS Codes).

There is no risk to human health or the environment whilst dispersants are stored in their correct packaging, aided by suitable spillage mitigation measures. The risk of exposure or potential environmental impact only occurs in cases of spillages, handling and the operational application of the product. More recent packaging labels and SDS may be marked with the signal words 'Danger' or 'Warning' and carry UN GHS pictograms to identify the hazards. GDS IBCs carry at least one of the following pictograms:

**Table 4: Common Dispersant Hazard Codes**

Pictogram	Signal Word	Hazard Statement
	Danger	<ul style="list-style-type: none"> <li>• Causes skin irritation</li> <li>• Causes serious eye damage</li> </ul>
	Danger	<ul style="list-style-type: none"> <li>• May be fatal if swallowed and enters airways</li> </ul>
	Warning	<ul style="list-style-type: none"> <li>• Combustible liquid</li> <li>• Causes serious eye irritation</li> <li>• Harmful if inhaled</li> </ul>

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### 2.10 Mobilisation Times

It should be noted that due to the variations along the entire response chain for any equipment, it is extremely difficult to provide accurate mobilisation times. The Equipment is stored in a configuration suitable for common transport to ensure a time efficient response via all modes of transport.

OSRL would encourage early mobilisation of Equipment to allow the most efficient options for transport to be considered.

### 2.11 Dispersant Spillage Instructions

In the event of an inadvertent dispersant leak or spillage occurring between the Primary Storage and the incident location, the procedure is included in the GA box. Primary storage locations have 1000litre spill kits available and the GA boxes contain 90litre spill kits.

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### 3 Equipment Transportation

#### 3.1 Consignment Tracking Information

Consignment tracking is the process, procedures and associated technology used to give both the consignor and consignee visibility of items in transit, whether in real time or at last known location. Visibility of items in transit is crucial for pragmatic operational planning and execution. Knowing where items in transit are and when they will be available for use at the required location, including expected arrival date and time, helps ensure the efficient and effective co-ordination of available resources to maximise operational capability.

Tracking of items in transit is achieved by:

- The reporting of the arrival or departure of the item
- Recording the following:
  - Identification of the item
  - Location where observed
  - Time and date

This process can be fully electronic, fully manual, or a combination of both electronic and manual, depending on the location and availability of consignment tracking information systems and member companies' own installed systems.


#### 3.2 Road Transport

WO / IO's planning teams should familiarise themselves with the specific procedures for each airport or seaport that has been identified for the loading and unloading of Equipment. Potential difficulties are to be highlighted and mitigated where possible.

Availability of road transport assets, material handling equipment for loading and offloading including availability of equipment operators is to be included.

Road routes to and from APOE / SPOE and airports of disembarkation (APOD) / seaports of disembarkation (SPOD) are to be proved on the ground if possible, paying attention to the following:

- Overhead clearance
- Width limits
- Weight limits
- Road furniture constraints
- Turning restrictions
- Traffic flows
- Bridges (heights and weight limits)
- Tolls

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The Equipment is deployable by road depending on the incident location and Primary Storage location. In some situations, this may be quicker and more cost effective than airfreight.

All the Primary Storage locations have suitable hauliers or haulier retainer contracts, providing a haulier if the Equipment is to be transported to either an APOE / SPOE or onwards to the incident.

The following considerations must be observed prior to and during road transport:

- liability insurance for both the dispersant value as well as potential environmental damage and pollution moves from OSRL to the WO / IO following movement from the Primary Storage location for GDS. Additional insurance is not required for routine maintenance and mobilisation exercises where the Equipment remains under the ownership of OSRL, as this is covered by the OSRL insurance policy<sup>3</sup>.
- IBCs must be single stacked when transported by road freight. Schütz Ltd advises full IBCs may be transported double stacked, however double stacking is likely to exceed trailer payload and axle weight distribution.
- To prevent IBC frame distortion during road transit on a flatbed type trailer, it is suggested IBCs are lashed over the top of the HDPE container but under the top metal frame, see **Figure 4** below. Slight HDPE container distortion may occur when lashing is tightened.
- It is the responsibility of the freight carrier to secure the load in accordance with company or regional requirements. Any damage occurring to the load during transport, then the liability insurance will provide a financial means to make good any damage caused.

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<sup>3</sup> This is true at the time of writing. Updates to this will be included in the subsequent LPG versions. Please seek OSRL DM's discretion.


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Figure 4: IBC Lashing

### 3.3 Sea Transport

Mobilising Equipment by sea is likely to have a slower delivery time but could be suitable and cost effective in certain situations, particularly if the incident is relatively near a Primary Storage location or delivery times dictate.


Dispersant IBCs can either be loaded for sea transport breakbulk as individual IBCs, loaded into DNV 2.7.1 (Offshore containers), or transferred into integrated ships tanks or ISO storage tanks. The pump package within the GA box may assist with any dispersant transfers.

Storage and transport of full IBCs in sea containers is dependent on forklift capabilities to determine whether single stack or double stack can be achieved.

- The requirement for specialised forklifts (reduced height mast / upright) in order to double stack (loading and unloading) in sea containers
- Ensure similar forklift capability is available at destination

OSRL can arrange sea freight if requested by the WO / IO, otherwise the following are WO / IO considerations:

- Charter the vessel/s and associated ships' agent
- Ensure all vessel port state clearances are carried out
- Form a contract with a stevedoring company to load Equipment to vessel (details provided by OSRL)

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- On site representative(s) to accept Equipment

### 3.3.1 Sea Fastening

The sea-fastening procedures will be the responsibility of the vessel crew. Welding of some equipment to decks may be required for safe at-sea storage.

### 3.3.2 Sailing Timelines

Table 5 below illustrates vessel sailing distances to some key ports. This list is not exhaustive, further information may be sought from [www.portworld.com](http://www.portworld.com).

Sailing distance in NM	Stavanger (NO SVG)	Bergen (NO BGO)	Aberdeen (GB ABD)	Falmouth (GB FAL)	Rotterdam (NL RTM)	Lisbon (PT LIS)	Dakar (SN DKR)	Las Palmas (ES LPA)	Houston (US HOU)	Rio de Janeiro (BR RIO)	Lagos (NG LOS)	Luanda (AO LAD)	Cape Town (ZA CPT)	Singapore (SG SIN)	Fremantle (AU FRE)
Stavanger (NO SVG)	0	89	280	767	439	1450	2931	2112	4879	5605	4533	5301	6515	8632*	9989*
Bergen (NO BGO)	89	0	302	835	513	1518	2999	2180	4858	5669	4601	5369	6583	8701*	10058*
Aberdeen (GB ABD)	280	302	0	656	388	1338	2819	2001	4707	5493	4422	5189	6404	8521*	9878*
Falmouth (GB FAL)	767	835	656	0	392	746	2227	1409	4584	4895	3829	4597	5812	7929*	9286*
Rotterdam (NL RTM)	439	513	388	392	0	1074	2555	1736	4966	5229	4157	4925	6139	8257*	9614*
Lisbon (PT LIS)	1450	1518	1338	746	1074	0	1525	710	4501	4217	3128	3895	5110	7207*	8564*
Dakar (SN DKR)	2931	2999	2819	2227	2555	1525	0	821	4447	2758	1602	2369	3584	8400*	8320
Las Palmas (ES LPA)	2112	2180	2001	1409	1736	710	821	0	4325	3509	2424	3191	4406	7614*	8971*
Houston (US HOU)	4879	4858	4707	4584	4966	4501	4447	4325	0	5279	5937	6693	7500	11630*	10947**
Rio de Janeiro (BR RIO)	5605	5669	5493	4895	5229	4217	2758	3509	5279	0	3294	3370	3290	8818	7882
Lagos (NG LOS)	4533	4601	4422	3829	4157	3128	1602	2424	5937	3294	0	1097	2583	8168	7323
Luanda (AO LAD)	5301	5369	5189	4597	4925	3895	2369	3191	6693	3370	1097	0	1599	7184	6339
Cape Town (ZA CPT)	6515	6583	6404	5812	6139	5110	3584	4406	7500	3290	2583	1599	0	5589	4743
Singapore (SG SIN)	8632*	8701*	8521*	7929*	8257*	7207*	8400*	7614*	11630*	8818	8168	7184	5589	0	2160
Fremantle (AU FRE)	9989*	10058*	9878*	9286*	9614*	8564*	8320	8971*	10947**	7882	7323	6339	4743	2160	0

\* = via Suez Canal

\*\* = via Panama Canal

All information extracted from Port World ( <http://www.portworld.com/map/> )

Table 5: Sailing Timelines

### 3.3.3 Mobilisation by Sea – Lines of Responsibilities

Find in Figure 5 a diagram of OSRL’s and the WO / IO’s responsibilities during the mobilisation process by sea. Table 6 shows a breakdown of responsibilities depending on tasks to be completed during the mobilisation process.




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Figure 5: Pictogram of OSRL's and WO / IO Responsibilities - Mobilisation by Sea<sup>4</sup>

Table 6: Breakdown of Responsibilities (Deployment by Sea)<sup>4</sup>

Task	Responsibility	Cost incurred by	Resources required	Service providers required	Service provider mobilized by
Selection of Required Equipment	OSRL and WO / IO	OSRL (Charged to WO / IO)	Personnel	None	None
Load Equipment for Transport to Seaport	OSRL / OSRL Contractors	OSRL (Charged to WO / IO)	Road Haulage, Forklift	Warehouse Contractors / Road Haulage Company	OSRL
Charter Vessel	WO / IO	WO / IO	Vessel Charter	Vessel Charter Provider	WO / IO
Mobilise Cargo Handlers	WO / IO	WO / IO	Handlers	Cargo Handling Agent	WO / IO

<sup>4</sup> This is true at the time of writing. Updates to this will be included in the subsequent LPG versions. Please seek OSRL DM's discretion.

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Task	Responsibility	Cost incurred by	Resources required	Service providers required	Service provider mobilized by
Pass Equipment to Cargo Handlers	OSRL / OSRL Contractors / WO / IO	OSRL / WO / IO	Handlers	Cargo Handling Agent	OSRL / WO / IO
Load Vessel	Cargo Handlers	WO / IO	Handlers	Cargo Handling Agent	WO / IO
Export Customs Clearances	WO / IO	WO / IO	Personnel	Customs Agent	WO / IO
Unload Vessel	Cargo Handlers	WO / IO	Handlers	Cargo Handling Agent	WO / IO
Import Customs Clearances	WO / IO	WO / IO	Personnel	Customs Agent	WO / IO
Transport from Seaport	WO / IO	WO / IO	Road Haulage, Forklift	Road Haulage Company	WO / IO


### 3.4 Air Transport

The following considerations must be observed prior to and during air transport:

- Are there internal procedures in place within the WO / IO company to arrange cargo handlers at the APOD?
- If the Equipment is to be sent by air, does the APOD receiving the Equipment have the resources and infrastructure in place?
- Can the APOE / APOD allow take off / landing of the chartered aircraft (noise regulations, runway specification, slot availability etc.)?
- Are special permits required to allow the landing of chartered aircraft?
- Will refuelling stops be necessary due to the distance and aircraft payload?
- Airport altitude and temperature (hot and high) may impact maximum aircraft payload
- Notice period required for aircraft availability is dependent upon aircraft movements and can take several days if there is a demand for a specific aircraft
- Boeing 747-400 will be able to carry between 42 and liquid 120 IBCs, depending on the Section 3.4.2 below
- Secondary options exist to transport IBCs as 'belly freight' in passenger service aircraft

It is strongly advised that planning is carried out by the WO / IO to ensure that facilities are available for offloading cargo at the APOD.



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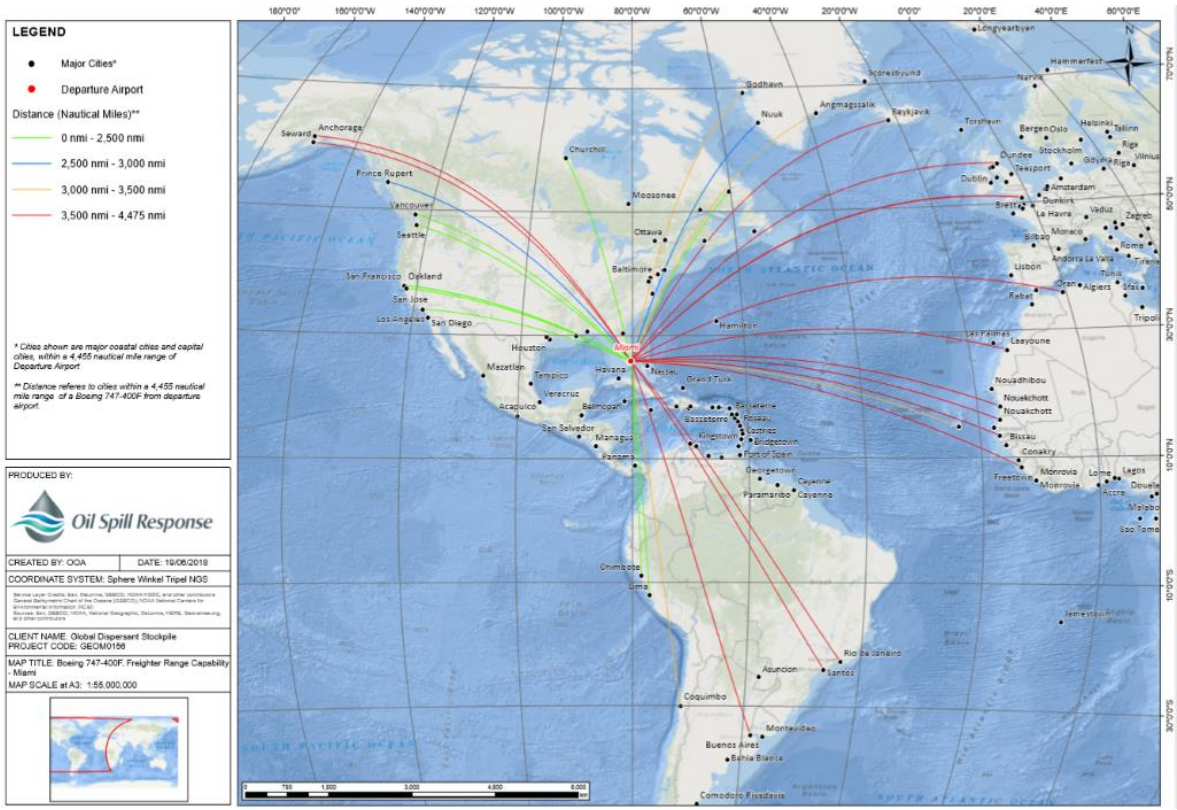


Figure 7: 747 Freighter Range Capability from Miami

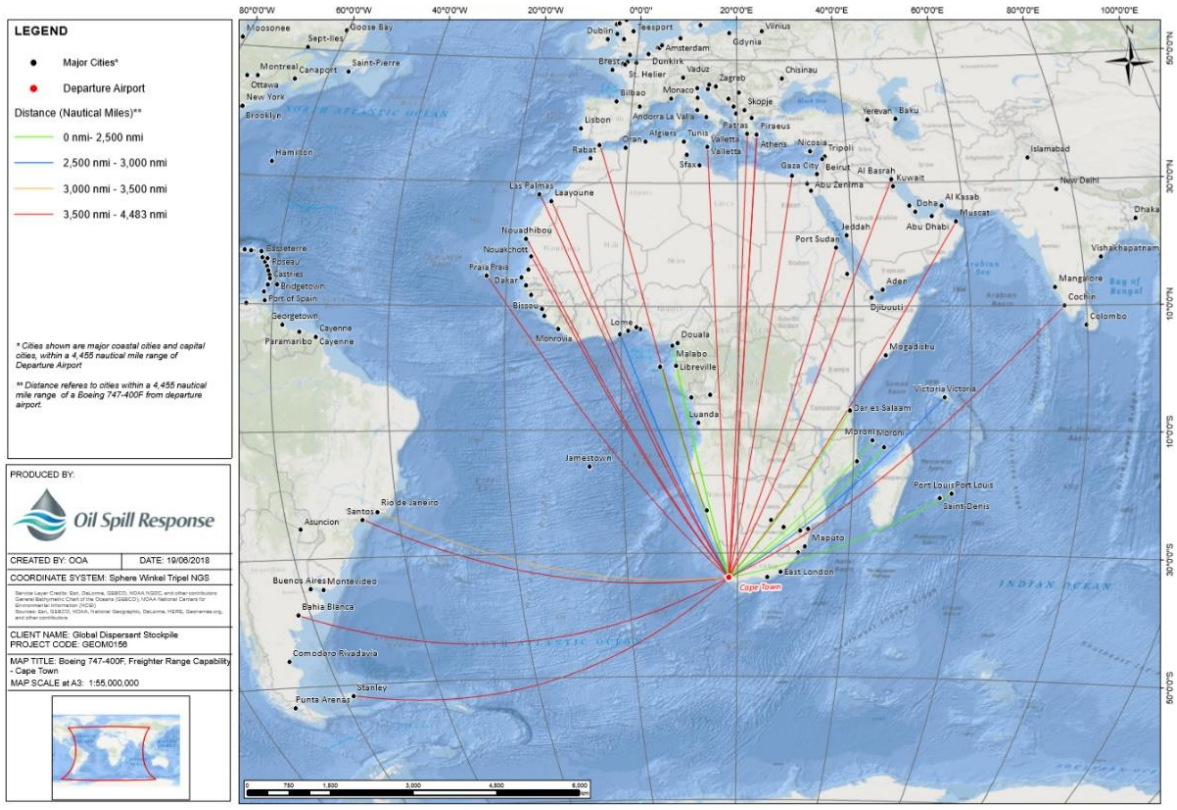


Figure 8: 747 Freighter Range Capability from Cape Town

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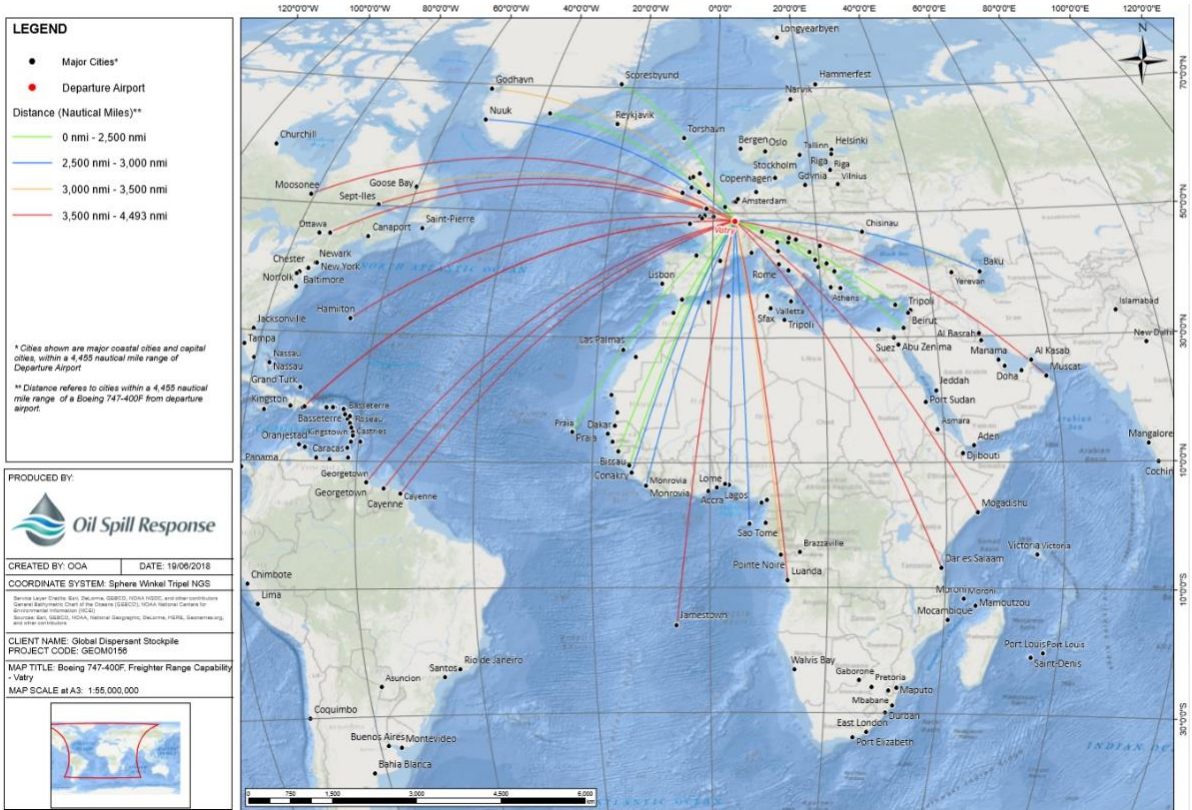


Figure 9: 747 Freighter Range Capability from Vatry

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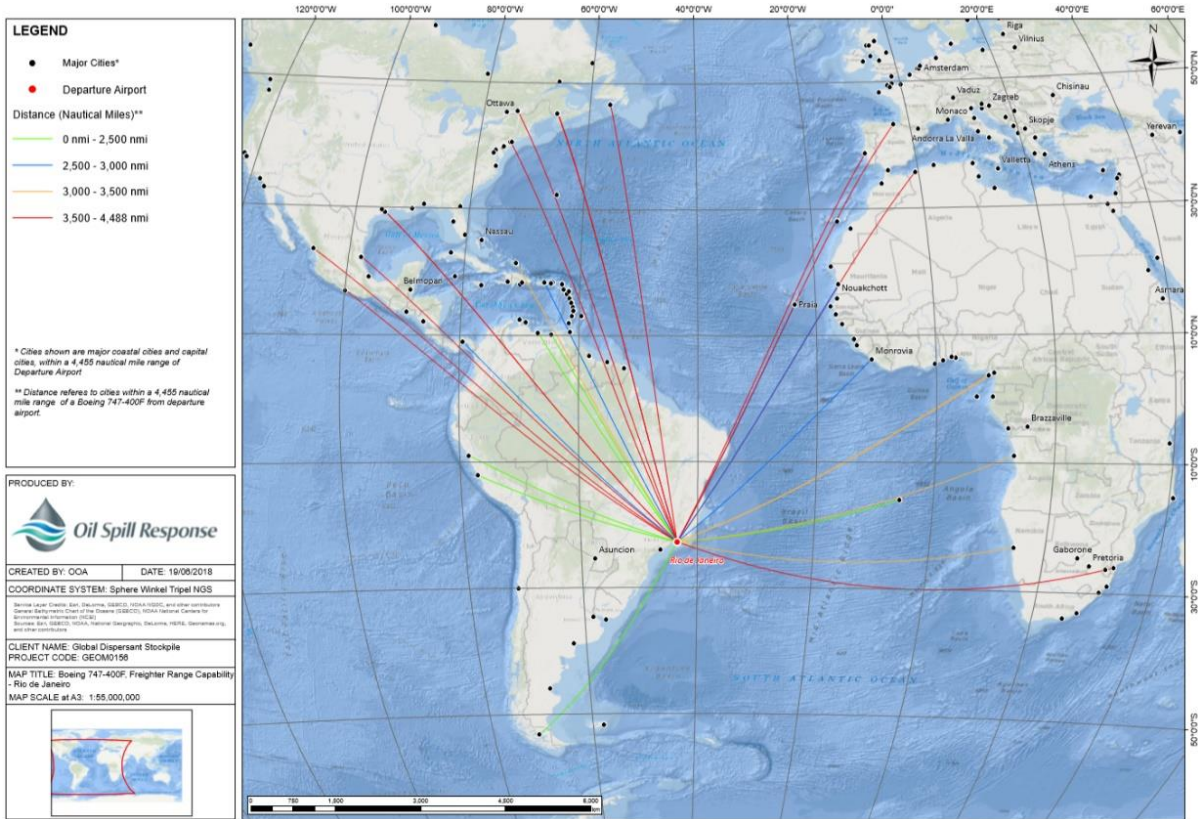



Figure 10: 747 Freighter Range Capability from Rio de Janeiro

### 3.4.2 Liquid Cargo

Operators of Boeing manufactured aircraft are subject to Boeing recommended operating practices for restricting the carriage of bulk liquids, such as IBC containers without baffles, to a specific percentage of the maximum payload for the aircraft type. This is a recommendation from Boeing in order to prevent excessive ‘sloshing’ of liquid during flight (especially in turbulence) which it is thought can cause the aircraft to become unstable and increase the fatigue level of the flight crew.

The safety restriction covers all models of Boeing aircraft, refer to the generic Boeing Service Letter found in Annex G. The safety restriction recommends restricting liquid loading to 42% of the aircraft max payload. In the case of the B747-400F (max payload 120,000kgs / 264,554lbs) this would mean a maximum payload of liquid cargo of 50,400kgs / 111,112lbs in accordance with the Service Letter for this aircraft type (747-SL-02-018). Where 1100kgs / 2,425lbs IBCs are being used, this means a total of 45x IBCs per flight. In this situation, the rest of the aircraft can be loaded with other non-liquid cargo up to the maximum payload of the aircraft. B747 converted freighters have a lower max payload and hence the maximum IBC count is 42x. **It should be noted that not all Boeing carriers follow this recommendation and there are known carriers at this time who will carry a full 100% load of liquid cargo.**

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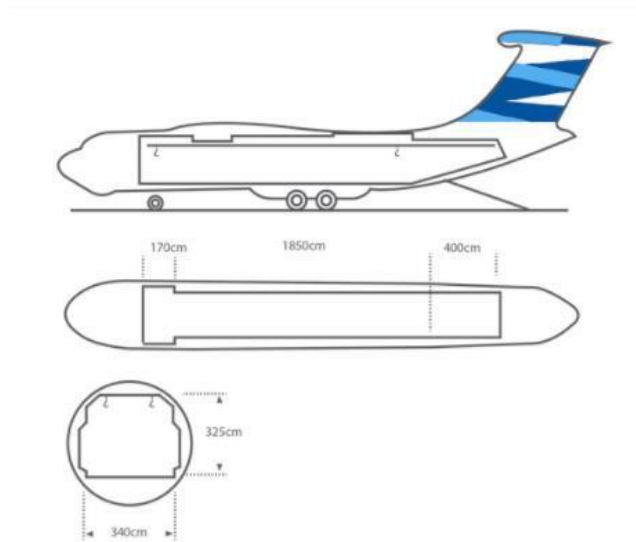
### 3.4.3 Aircraft Types

It is important to consider that not all aircraft types can be accepted by all airports. Specific aircraft availability and airport capabilities can be assessed at the time of a mobilisation to ensure that the best mobilisation option is selected based on the incident location.

All aircraft loading will be subject to individual aircraft operator guidelines, loadmaster requirements and aircraft weight and balance rules.

There are several types of cargo aircraft that may be used. See below an assortment of aircraft and their capabilities. Please consider the descriptions as guidance and not as authoritative information.


#### ILYUSHIN IL-76TD-90VD



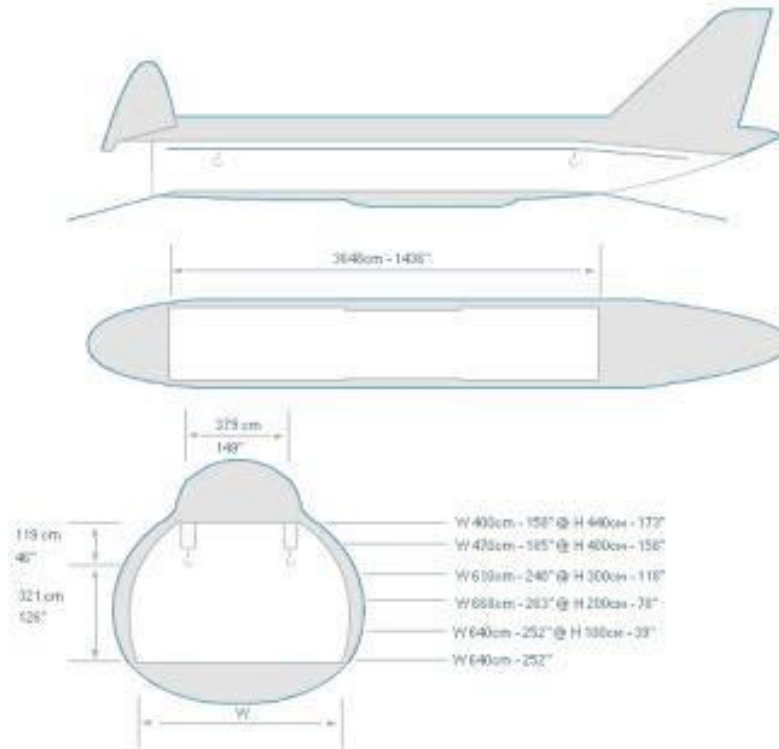
**Figure 11: Ilyushin IL-76TD-90VD Cargo Hold Dimensions**

The IL-76TD-90VD is a medium size cargo aircraft with the following capabilities:

- Rear loading ramp
- On board cranes and cargo handling equipment
- Self-loading and discharge capabilities Maximum gross payload 46,000kg
- Range (maximum payload) 4530km

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**ANTONOV AN124, (Models 100 and 150)**



**Figure 12: Antonov AN124 Cargo Hold Dimensions**

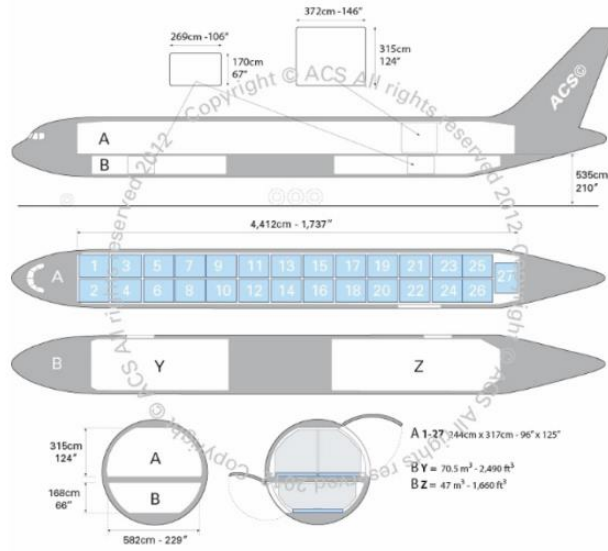
The Antonov AN124 is a heavy cargo aircraft with the following capabilities:

- Front and rear loading ramps
- On board cranes and cargo handling equipment
- Self-loading and discharge capabilities
- Maximum gross payload 120,000kg
- Range (maximum payload) 4350kg



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**BOEING B777-200F**



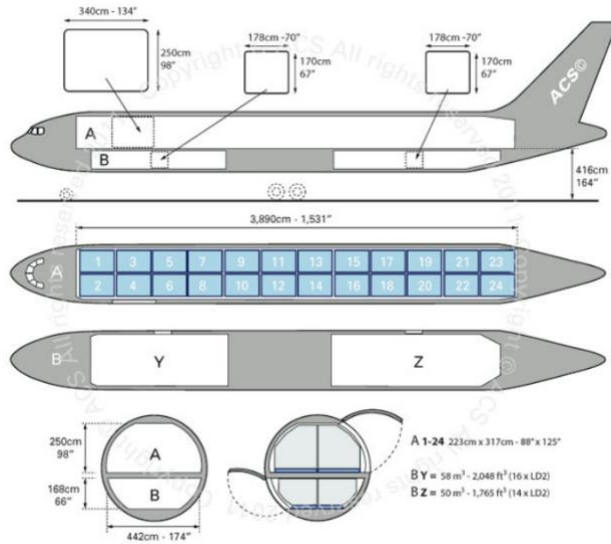
**Figure 13: Boeing B777-200F Cargo Hold Dimensions**

The Boeing B777-200F is a large cargo aircraft with the following capabilities:

- Cruise Speed: 553 mph
- Range: long haul
- Maximum payload: 103 tons
- Hold Size (LxWxH): 4412x582x315 cm
- Door Size (WxH): 372x315 cm
- Total load volume: 653 m<sup>3</sup>
- Maximum range: 5632 miles

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**BOEING B767-300F**



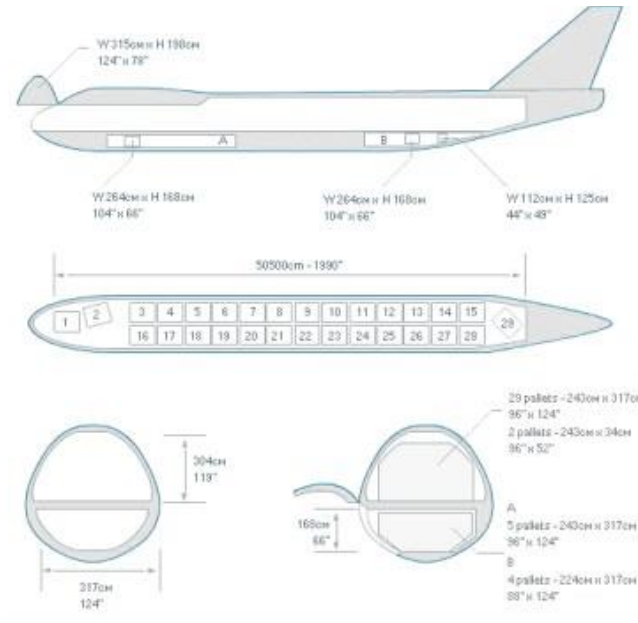
**Figure 14: Boeing B767-300F Cargo Hold Dimensions**

The Boeing B767-300F is a medium to large cargo aircraft with the following capabilities:

- Cruise Speed: 528 mph
- Range: medium to long haul
- Maximum payload: 54 tons
- Hold Size (LxWxH): 3890x450x250 cm
- Door Size (WxH): 340x260 cm
- Total load volume: 438 m<sup>3</sup>
- Maximum range: 3763 miles

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**BOEING B747F**




**Figure 15: Boeing B747F Cargo Hold Dimensions**

The Boeing B747F (Freighter) is a heavy cargo aircraft with the following capabilities:

- Nose door and large side cargo door
- Belly freight
- Main cargo deck with 29 pallet positions (largest palletised cargo aircraft)
- Pressurised cargo cabin suitable for freight all kinds
- Temperature control range from 4 to 30°C
- Roller bed systems
- Maximum gross payload 112,630kg
- Range (maximum payload) 8230km

Note: Unlike the AN124 and Ilyushin IL76, the B747F does not have the on-board capabilities of loading and offloading itself. To load and offload a B747F the airport ground handling crew will need to have an adequate Main Deck Loader (MDL). Most international airports globally have the equipment needed to offload this aircraft, but the range of weight capacity varies between 7 metric tons and 35 metric tons.

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**3.4.4 Mobilisation by Air – Lines of Responsibilities**

Find in **Figure 16** a diagram of OSRL’s and the WO / IO’s responsibilities during the mobilisation process by air. **Table 7** shows a breakdown of responsibilities depending on tasks to be completed during the mobilisation process.




Figure 16: Pictogram of OSRL's and WO / IO Responsibilities - Mobilisation by Air<sup>5</sup>


Table 7: Breakdown of Responsibilities (Deployment by Air)<sup>5</sup>

Task	Responsibility	Cost incurred by	Resources required	Service providers required	Service provider mobilized by
Selection of Required Equipment	OSRL and WO / IO	OSRL (Charged to WO / IO)	Personnel	None	N/A
Load Equipment for Transport to Airport	OSRL/OSRL Contractors	OSRL (Charged to WO / IO)	Road Haulage, Forklift	Warehouse Contractors / Road Haulage Company	OSRL

<sup>5</sup> This is true at the time of writing. Updates to this will be included in the subsequent LPG versions. Please seek OSRL DM’s discretion.

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Task	Responsibility	Cost incurred by	Resources required	Service providers required	Service provider mobilized by
Charter aircraft	WO / IO	WO / IO	Aircraft Charter	Aircraft Charter Provider	WO / IO
Mobilise Cargo Handlers	WO / IO	WO / IO	Handlers, MDL's etc.	Cargo Handling Agent	WO / IO
Pass Equipment to Cargo Handlers	OSRL / OSRL Contractors / WO / IO	OSRL/ WO / IO	Handlers	Cargo Handling Agent	OSRL / WO / IO
Load Aircraft	Cargo Handlers	WO / IO	Handlers, MDL's etc.	Cargo Handling Agent	WO / IO
Export Customs Clearances	WO / IO	WO / IO	Personnel	Customs Agent	WO / IO
Unload Aircraft	Cargo Handlers	WO / IO	Handlers, MDL's etc	Cargo Handling Agent	WO / IO
Import Customs Clearances	WO / IO	WO / IO	Personnel	Customs Agent	WO / IO
Transport from Airport	WO / IO	WO / IO	Road Haulage, Forklift	Road Haulage Company	WO / IO

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## 4 Equipment

### 4.1 Stockpile Support Equipment

GDS stockpiles are aligned to ensure suitable stockpile response support equipment is available at the primary and secondary storage locations in the event of a dispersant spillage as well as a means of transferring the dispersant into bulk storage with the high-volume diesel transfer pump with a flow rate of 870 L/min and associated hoses and valves. **Figure 17** below illustrates a typical stockpile support equipment layout at the Primary Storage locations.



**Figure 17: Primary Storage Support Equipment**

The Primary Storage locations are facilitated with a 1000 litre capacity wheeled chemical spillage bin, double IBC bund and one spare empty IBC (with transfer hose) – this equipment shall be located and maintained at the Primary Storage location. The spillage bins include spillage instructions/absorbent pads/boom/drainage covers/putty sheets or pots/PPE. The spillage bin is located at an accessible location or relocated to a location of high-risk during IBC movements.

The GA box and one spare empty IBC (with transfer hose) will be mobilised with the first mobilisation of IBCs, to support the stockpile during freight transport and onwards to WO / IO's location. If the secondary storage location becomes fragmented, the GA box and spare empty IBC shall remain with the largest volume.

**Figure 18** below illustrates the support equipment that will be loaded with the first IBC road freight load.



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Figure 18: Secondary Storage Location Support Equipment

#### 4.2 Equipment Storage

If Equipment is mobilised from the Primary Storage location; either temporarily located at a port, airport, on a trailer or aboard a vessel (Secondary Storage location) – the following considerations must be observed:

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- Temporary shelter to protect the dispersant from direct sunlight, high humidity, and saltwater. If solid shelter is unavailable, opaque sheeting should be applied to cover the IBCs.
- Considerations should be observed if storage location poses a potential environmental impact, such as gradient run off or open drains etc. If drainage systems are in the vicinity of the dispersant, then suitable drain covers must be utilised. Drain covers are available in the GA box, see Annex A.
- IBC relocated from the Primary Storage location must be accompanied with a spare empty IBC, gravity transfer hose and the GA box.

### 4.3 Secondary Storage Weekly Checks

On mobilisation of the Equipment from Primary Storage; this could be during freight, temporary laydown area, at the incident location, in bulk storage or on a vessel – the following weekly checks should be observed:

- Ensure there are no dispersant leakages from the containers or the discharge valves.
- Ensure the Equipment is secure and weather tight, ensure either solid shelter or opaque sheeting is maintained.
- Ensure IBCs are stored in accordance with manufacturer's instructions and away from direct sunlight).



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## 5 Reverse Logistics


In accordance with the GDS Supplementary Agreement, the Equipment is a sale to the WI / IO at the Primary Storage location. The lead time to resupply the complete GDS stockpile will take a number of months. OSRL is obliged to replace any Equipment used as soon as possible in the event another GDS Member requires Equipment, or if the WO / IO requires additional Equipment.

If the WO / IO no longer requires the Equipment at the incident, OSRL will consider repurchasing the Equipment (depending on the warehouse resupply status) from the WO / IO. The WO / IO shall cover all costs associated with exportation / importation, return freight and associated duties to the Primary Storage location. If the Equipment has been exposed to direct sunlight or temperatures outside of the recommended storage parameters for extended periods, or located in bulk storage, then the dispersant will undergo efficacy testing prior to OSRL acceptance. If any of the Equipment is subject to excessive corrosion or general damage on return, then the WO / IO shall also bare the associated costs to ensure the Equipment is restored to a suitable standard.

### 5.1 Dispersant Re-Supply


**Table 8: Dispersant Re-supply Information**

Supplier	Dispersant	Delivery Information
<b>Dasic International</b>  Winchester Hill Romsey Hampshire SO51 7YD United Kingdom  Tel: +44 (0) 1794 512 419  Email: <a href="mailto:sales@dasicinter.com">sales@dasicinter.com</a>	Slickgone NS	90 IBCs available in 24hrs.  108 IBCs per 24 hrs with a 12-week lead time.
<b>Champion X</b>  Champion X 7705 Highway 90-A Sugar Land TX 77478 USA Tel: +001 8328515164	Corexit EC9500A	Currently Unavailable

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Email: <a href="mailto:debby.theriot@corexit.com">debby.theriot@corexit.com</a>		
<b>Total Fluides</b>  24 Cours Michelet - La Défense 10 92069 Paris La Défense  Cedex France  Tel: +(33) 1 41 35 39 33  Email: <a href="mailto:jean-yves.lansot@total.com">jean-yves.lansot@total.com</a>	Finasol OSR52	60 x IBCs per day, with a 12-week lead time

<b>Notes</b>	1. Capacity assumes that raw material suppliers can keep up supplies. True production capacity could be reduced dramatically, especially if dispersant is also being sourced from multiple manufacturers. Most dispersant manufacturers use sodium di iso octyl sulphosuccinate and sorbitan monooleate surfactants in their formulations. If several companies are sourcing these materials at the same time, the supply chain would be severely strained.
	2. Do not add together the production capacities quoted by the various dispersant manufacturers.
	3. 2. All volumes listed above would be delivered in 1000 litre IBCs.
	4. 3. OSRDl must purchase dispersants during resupply, then restock the GDS. The WO / IO cannot purchase direct from Total Energie Fluides (in accordance with end user indemnity agreements). There are no purchase restrictions with Dasic products, as there are no end user indemnities required.

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## 6 Glossary

Logistics terminology used within the document is, where possible, universal. For the purposes of the context of the document the following simplified terms and abbreviations are used:

### 6.1 Terminology

**Deployment** – Move and bring into effective action, i.e. deploying stores and Equipment to required destinations.

**Dispersant Logistics Plan** – A model to plan and predict available, delivered, and applied dispersant at location. **DNV 2.7.1** – Standards for Offshore containers, OSRL equipment referred to as DNV in this plan meets either DNV 2.7.1 (Offshore containers).

**Equipment** – The dispersant and stockpile support equipment.

**Lead time** - The period of time from when the item is ordered to when the item is delivered to and received at the final destination ready for use (technically Supply Lead Time). The understanding of lead times is a critical management component.

**Logistics** - Management and flow of resources between point of origin and point of consumption.

**Maintenance** - The process of preserving a condition in respect of Equipment, associated items and other items in storage therefore ensuring items are fit for issue and subsequent use. Including planned and unplanned activities.

**Material Handling Equipment** - Equipment that relates to the movement, storage, control and protection of materials, goods, and products.

**Mobilisation** - Make something movable or capable of movement, i.e. making stores and Equipment ready for deployment.

**Primary Storage** – The primary long-term storage warehouse location of the Equipment prior to mobilisation.

**Recovery** - Move items back from deployment location to OSRL GDS storage location.

**Secondary Storage** – Any Equipment location following mobilisation from Primary Storage; this could be during freight, temporary laydown area, at the incident location, in bulk storage or on a vessel.

### 6.2 Abbreviations

**AD** - Advisory Directive

**ADN** - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

**ADR** - European Agreement concerning the International Carriage of Dangerous Goods by Road


**APOD** – Airport of Disembarkation

**APOE** – Airport of Embarkation

**DANFE** - Documento Auxiliar de Nota Fiscal Eletrônica

**DGR** – Dangerous Goods Regulations

**DOM** – Date of Manufacture

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**GA Box** – Going Away Box

**GDS** – Global Dispersant Stockpile

**GHS** – United Nation’s Global Harmonised System

**IATA** – International Air Transport Association

**IBC** – Intermediate Bulk Container

**ICAO** – International Civil Aviation Organisation

**LPG** – Logistics Planning Guide

**MDL** – Main Deck Loader

**NDP** – Nominated Destination Point

**NF-e** - Nota Fiscal Eletrônica (sales invoice)

**OSRDB** – Oil Spill Response do Brasil Armazenamento e Distribuição de Dispersantes Ltda


**OSRL** – Oil Spill Response Limited

**SDS** – Safety Data Sheet

**SPOD** – Seaport of Disembarkation

**SPOE** – Seaport of Embarkation

**WO / IO** - Well Owner / Incident Owner


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## 7 Reference documents

The below table identifies the documents to assist the WO / IO during a mobilisation (correct at time of printing).


**Table 9: Supporting Documents for Mobilisation**

<b>Document no.</b>	<b>Document Title</b>
OSRL-OPER-FOR-00172	Mobilisation Authorisation Form
OSRL-OPER-FOR-00173	OSRL Notification Form
OSRL-OPER-GUI-00940	Brazil Exportation Guidelines (Oil Spill Dispersants)
OSRL-OPER-PRO-01012	Internal Selling Procedure for Dispersants Brazil

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## APPENDIX A: Going Away Box Inventory

- 1 x Large storage box
- 1 x Diesel pump frame mounted on a wheeled trolley
- 3 x 6m 2" hoses with 2" female-male camlock nylon connectors
- 1 x 1m Plastic/poly pick up tube with 2" female camlock and 2" ball valve
- 1 x IBC Cap Spanner
- 1 x 1m x 2m bund
- 1 x Going Away spill kit (90 litres)
- 1 x bale of drizits
- PPE storage for three persons
  - 9 x Impervious suits (3 x med. 3 x large, 3 x extra-large)
  - 3 x UVEX goggles
  - 1 x box nitrile gloves
  - 3 x Pairs of gauntlets
  - 1 x Reel of gaffer tape
  - 1 x Eye wash station
  - 1 x Dispersant Information folder (SDS, COSHH, Emergency Contact etc)
  - Spares & Ancillaries Storage Box
  - 3 x Pump & diesel engine manuals
  - 3 x 2" Ball valve with 2" female/male connections
  - 1 x 2" T – piece with 2" female outlets
  - 1 x 2" double male adapter
  - 1 x 2" double female adapter
  - 2 x 2" NPT/camlock adapters
  - 1 x Viton repair kit – 9907- KT026
  - 1 x Drain plug – 9907-723-30
  - 1 x Filler plug – 9907-722-30
  - 1 x Fuel filter - BW699-1093
  - 1 x Air filter - BWL2175254
  - 1 x 5lt diesel can
  - 1 x Medium funnel
  - 1 x Toolkit
  - 1 x Pack of medium cable ties
  - 1 x 2" Female camlock hose connections
  - 1 x Dispersant effectiveness kit
  - 2 x Neoprene drain covers
  - 1 x bag of rags

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## APPENDIX B: Slickgone NS Safety Data Sheet

Revision date: 15/10/2018

Revision: 15

Supersedes date: 11/01/2018



**DASIC**  
**INTERNATIONAL**  
SAFETY DATA SHEET  
Slickgone NS

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product name Slickgone NS

Product number F315

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Internationally approved dispersant for treating oil spills in the marine environment.

#### 1.3. Details of the supplier of the safety data sheet

Supplier Dasic International OSD Ltd  
Winchester Hill, Romsey, Hampshire, SO51 7YD, UK  
+44 1794 512419  
+44 1794 522346  
info@dasicinter.com

#### 1.4. Emergency telephone number

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Asp. Tox. 1 - H304

Environmental hazards Not Classified

#### 2.2. Label elements

##### Pictogram



Signal word Danger

Hazard statements H304 May be fatal if swallowed and enters airways.


Precautionary statements P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P260 Do not breathe spray.  
P313 Get medical advice/ attention.

Contains Distillates (petroleum), hydrotreated light

#### 2.3. Other hazards

### SECTION 3: Composition/information on ingredients

#### 3.2. Mixtures

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Supersedes date: 11/01/2018

### Slickgone NS

<b>Distillates (petroleum), hydrotreated light</b>	<b>60-100%</b>
CAS number: 64742-47-8      EC number: 265-149-8      REACH registration number: 01-2119484819-18-0001	
<b>Classification</b> Asp. Tox. 1 - H304	
<b>Sodium dioctyl sulphosuccinate</b>	<b>5-10%</b>
CAS number: 577-11-7      EC number: 209-406-4      REACH registration number: 01-2119491296-29-0000	
<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	

The full text for all hazard statements is displayed in Section 16.

#### SECTION 4: First aid measures

##### 4.1. Description of first aid measures

<b>Inhalation</b>	Considered to be a low inhalation hazard at normal workplace temperatures. Get medical attention if symptoms are severe or persist.
<b>Ingestion</b>	Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis. Get medical attention if a large quantity has been ingested. If in doubt, get medical attention promptly. Never give anything by mouth to an unconscious person.
<b>Skin contact</b>	Remove contaminated clothing and rinse skin thoroughly with water. Get medical attention if symptoms are severe or persist.
<b>Eye contact</b>	Remove any contact lenses and open eyelids wide apart. Rinse with water. Continue to rinse for at least 15 minutes and get medical attention.

##### 4.2. Most important symptoms and effects, both acute and delayed

<b>Inhalation</b>	No specific symptoms known.
<b>Ingestion</b>	Aspiration hazard if swallowed. Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.
<b>Skin contact</b>	May cause irritation.
<b>Eye contact</b>	May cause severe eye irritation.

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

#### SECTION 5: Firefighting measures


##### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.

##### 5.2. Special hazards arising from the substance or mixture

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**Hazardous combustion products** Acrid smoke or fumes.

### 5.3. Advice for firefighters

**Protective actions during firefighting** Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for firefighters** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

## **SECTION 6: Accidental release measures**

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions** Wear protective clothing as described in Section 8 of this safety data sheet. No smoking, sparks, flames or other sources of ignition near spillage.

### 6.2. Environmental precautions

**Environmental precautions** Avoid the spillage or runoff entering drains, sewers or watercourses. Inform the relevant authorities if environmental pollution occurs (sewers, waterways, soil or air).

### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up** Absorb spillage with sand or other inert absorbent. Collect spillage for reclamation or disposal in sealed containers via a licensed waste contractor. Flush contaminated area with plenty of water.

### 6.4. Reference to other sections

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

**Usage precautions** Wear protective clothing as described in Section 8 of this safety data sheet. Eliminate all sources of ignition. Do not spray on an open flame or other ignition source.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Keep out of the reach of children. Keep only in the original container in a cool, well-ventilated place. Store away from the following materials: Strong oxidising agents. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight.

### 7.3. Specific end use(s)

**Specific end use(s)** Obtain special instructions before use.

## **SECTION 8: Exposure Controls/personal protection**

### 8.1. Control parameters

#### Occupational exposure limits

**Distillates (petroleum), hydrotreated light**


CEFIC-HSPA : 1200 mg/m<sup>3</sup>

#### Distillates (petroleum), hydrotreated light (CAS: 64742-47-8)

**DNEL**

Consumer - Oral; Long term systemic effects: 19 mg/kg/day  
Workers - Inhalation; Long term systemic effects: 330 mg/m<sup>3</sup>

#### Sodium dioctyl sulphosuccinate (CAS: 577-11-7)

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DNEL

Professional - Inhalation; Long term systemic effects: 13 mg/m<sup>3</sup>

Professional - Dermal; Long term systemic effects: 18.8 mg/kg/day

Professional - Oral; Long term systemic effects: 18.8 mg/kg/day

#### 8.2. Exposure controls

<b>Appropriate engineering controls</b>	Provide adequate ventilation.
<b>Eye/face protection</b>	Wear chemical splash goggles.
<b>Hand protection</b>	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.
<b>Other skin and body protection</b>	Wear suitable protective clothing as protection against splashing or contamination.
<b>Respiratory protection</b>	Respiratory protection may be required if excessive airborne contamination occurs. Wear a respirator fitted with the following cartridge: Organic vapour + dust and mist filter.

#### SECTION 9: Physical and Chemical Properties

##### 9.1. Information on basic physical and chemical properties


<b>Appearance</b>	Viscous liquid.
<b>Colour</b>	Brown.
<b>Odour</b>	Slight. Petroleum.
<b>Odour threshold</b>	No information available.
<b>pH</b>	pH (concentrated solution): 5 - 7
<b>Melting point</b>	< -10°C
<b>Initial boiling point and range</b>	192°C @ 760 mm Hg
<b>Flash point</b>	72°C Pensky-Martens closed cup.
<b>Evaporation rate</b>	No information available.
<b>Upper/lower flammability or explosive limits</b>	No information available.
<b>Vapour pressure</b>	No information available.
<b>Vapour density</b>	> 1 (air = 1)
<b>Relative density</b>	0.88 @ 20°C
<b>Solubility(ies)</b>	Forms an emulsion with water.
<b>Partition coefficient</b>	Not applicable.
<b>Auto-ignition temperature</b>	225°C
<b>Decomposition Temperature</b>	No information available.
<b>Viscosity</b>	Kinematic viscosity ≤ 20.5 mm <sup>2</sup> /s.

##### 9.2. Other information

<b>Other information</b>	Conductivity 5.4 x 10 <sup>17</sup> pS/m (Concentrate product).
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#### SECTION 10: Stability and reactivity

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**10.1. Reactivity**

**10.2. Chemical stability**

**Stability** No particular stability concerns.

**10.3. Possibility of hazardous reactions**

**Possibility of hazardous reactions** The following materials may react strongly with the product: Oxidising agents.

**10.4. Conditions to avoid**

**Conditions to avoid** Avoid the following conditions: Heat, sparks, flames. Thermal decomposition or combustion products may include the following substances: Acrid smoke or fumes.

**10.5. Incompatible materials**

**Materials to avoid** Oxidising agents.

**10.6. Hazardous decomposition products**

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity - oral**

**ATE oral (mg/kg)** 21,978.02

**Acute toxicity - dermal**

**ATE dermal (mg/kg)** 21,978.02

**Aspiration hazard**

**Aspiration hazard** Aspiration hazard if swallowed.

**Ingestion** Aspiration hazard if swallowed. Nausea, vomiting.

**Skin contact** Prolonged contact may cause dryness of the skin.

**Eye contact** May cause severe eye irritation.

**SECTION 12: Ecological Information**

**12.1. Toxicity**

**Ecological information on ingredients.**

**Distillates (petroleum), hydrotreated light**

**Acute aquatic toxicity**

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 2.4 mg/l, Oncorhynchus mykiss (Rainbow trout)

**Sodium dioctyl sulphosuccinate**

**Acute aquatic toxicity**


**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 20 - 40 mg/l, Oncorhynchus mykiss (Rainbow trout)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 36 mg/l, Daphnia magna

**12.2. Persistence and degradability**

**Persistence and degradability** Expected to be readily biodegradable.

**Phototransformation** Data lacking.

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**Stability (hydrolysis)** Data lacking.

**Biodegradation** Data lacking.

**Biological oxygen demand** Data lacking.

**Chemical oxygen demand** Data lacking.

#### 12.3. Bioaccumulative potential

**Bioaccumulative potential** The product does not contain any substances expected to be bioaccumulating.

**Partition coefficient** Not applicable.

#### 12.4. Mobility in soil

**Mobility** Semi-mobile.

**Adsorption/desorption coefficient** Not applicable.

**Henry's law constant** Not applicable.

**Surface tension** Data lacking.

#### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

#### 12.6. Other adverse effects

**Other adverse effects** None known.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**General information** Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

**Disposal methods** Dispose of waste product or used containers in accordance with local regulations External recovery, treatment, recycling and disposal of waste should comply with all applicable local and/or national regulations.

### SECTION 14: Transport information

**General** The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

#### 14.1. UN number

**UN No. (ADR/RID)** Not regulated.

**UN No. (IMDG)** Not regulated.


**UN No. (ICAO)** Not regulated.

**UN No. (ADN)** 9003

#### 14.2. UN proper shipping name

Not applicable.

**Proper shipping name (ADR/RID)** Not regulated.

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**Proper shipping name (IMDG)** Not regulated.

**Proper shipping name (ICAO)** Not regulated.

**Proper shipping name (ADN)** Substances with a flash point above 60°C and not more than 100°C

### 14.3. Transport hazard class(es)

**ADN class** 9

### 14.4. Packing group

Not applicable.

### 14.5. Environmental hazards

**Environmentally hazardous substance/marine pollutant**

No.

### 14.6. Special precautions for user

Not applicable.

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

**Transport in bulk according to** Not applicable.

**Annex II of MARPOL 73/78  
and the IBC Code**

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**EU legislation** Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

## SECTION 16: Other information

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**SDS number** 4607

**Hazard statements in full** H302 Harmful if swallowed.  
H304 May be fatal if swallowed and enters airways.  
H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

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## APPENDIX C: Corexit EC9500A Safety Data Sheet



### SAFETY DATA SHEET

**COREXIT™ EC9500A**

#### Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : COREXIT™ EC9500A  
 Other means of identification : Not applicable.  
 Recommended use : OIL SPILL DISPERSANT  
 Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.  
 Company : COREXIT Environmental Solutions LLC  
 11177 S. Stadium Drive  
 Sugar Land, Texas 77478  
 USA  
 TEL: +1 (832) 851-5164  
 Emergency telephone number : (800) 424-9300 (24 Hours) CHEMTREC  
 Issuing date : 08/30/2019

#### Section: 2. HAZARDS IDENTIFICATION

##### GHS Classification

Flammable liquids : Category 4  
 Acute toxicity (Inhalation) : Category 4  
 Eye irritation : Category 2A

##### GHS Label element

Hazard pictograms :



Signal Word : Warning

Hazard Statements : Combustible liquid  
 Causes serious eye irritation.  
 Harmful if inhaled.

Precautionary Statements : **Prevention:**  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ eye protection/ face protection.

##### Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/ physician if you feel unwell. IF IN EYES:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention. In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.


##### Storage:

Store in a well-ventilated place. Keep cool.

Other hazards : None known.

#### Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

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Pure substance/mixture	: Mixture	CAS-No.	Concentration: (%)
Chemical Name		64742-47-8	10 - 30
Distillates, petroleum, hydrotreated light		Proprietary	10 - 30
Organic sulfonic acid salt		57-55-6	1 - 5
Propylene Glycol			

**Section: 4. FIRST AID MEASURES**

In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
In case of skin contact	: Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	: Rinse mouth. Get medical attention if symptoms occur.
If inhaled	: Remove to fresh air. Treat symptomatically. Get medical attention.
Protection of first-aiders	: In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	: Treat symptomatically.
Most important symptoms and effects, both acute and delayed	: See Section 11 for more detailed information on health effects and symptoms.

**Section: 5. FIREFIGHTING MEASURES**

Suitable extinguishing media	: Foam Carbon dioxide Dry powder Other extinguishing agent suitable for Class B fires For large fires, use water spray or fog, thoroughly drenching the burning material.
Unsuitable extinguishing media	: None known.
Specific hazards during firefighting	: Fire Hazard Keep away from heat and sources of ignition. Flash back possible over considerable distance.
Hazardous combustion products	: Decomposition products may include the following materials: Carbon oxides Sulphur oxides metal oxides
Special protective equipment for firefighters	: Use personal protective equipment.
Specific extinguishing methods	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not

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**SAFETY DATA SHEET****COREXIT™ EC9500A**

breathe fumes.

**Section: 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Remove all sources of ignition. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Do not allow contact with soil, surface or ground water.
- Methods and materials for containment and cleaning up : Eliminate all ignition sources if safe to do so. Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.


**Section: 7. HANDLING AND STORAGE**

- Advice on safe handling : Avoid contact with skin and eyes. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from fire, sparks and heated surfaces. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Use only with adequate ventilation.
- Conditions for safe storage : Keep away from heat and sources of ignition. Keep away from oxidizing agents. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.
- Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Stainless Steel 304, Stainless Steel 316L, Aluminum, Hastelloy C-276, MDPE (medium density polyethylene), HDPE (high density polyethylene), PVC, Plexiglass, Perfluoroelastomer, PTFE, TFE, FEP (encapsulated)
- Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Mild steel, Carbon steel, Buna-N, Brass, Copper, Natural rubber, Polyethylene, Polypropylene, Ethylene propylene, EPDM, Neoprene, Nitrile, Polyurethane, Fluoroelastomer, Chlorosulfonated polyethylene rubber, Polytetrafluoroethylene/polypropylene copolymer

**Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Distillates, petroleum, hydrotreated light	64742-47-8	TWA	500 ppm 2,000 mg/m <sup>3</sup>	OSHA Z1
		TWA	200 mg/m <sup>3</sup> (as total hydrocarbon vapor)	ACGIH
		TWA (Mist)	5 mg/m <sup>3</sup>	OSHA Z1
		TWA (Mist)	5 mg/m <sup>3</sup>	NIOSH REL
		STEL (Mist)	10 mg/m <sup>3</sup>	NIOSH REL
Propylene Glycol	57-55-6	TWA	10 mg/m <sup>3</sup>	AIHA WEEL



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Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

**Personal protective equipment**

Eye protection : Safety goggles  
Face-shield

Hand protection : Wear the following personal protective equipment:  
Standard glove type.  
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin protection : Wear suitable protective clothing.

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

**Section: 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : Liquid

Colour : amber

Odour : hydrocarbon-like

Flash point : 83 °C, Method: ASTM D 93, Pensky-Martens closed cup, Does not sustain combustion.

pH : 6.2,(100 %)

Odour Threshold : no data available

Melting point/freezing point : POUR POINT: < -57 °C, ASTM D-97

Initial boiling point and boiling range : 147 °C, (760 mm Hg), Method: ASTM D 86

Evaporation rate : no data available

Flammability (solid, gas) : no data available

Upper explosion limit : Not applicable.

Lower explosion limit : Not applicable.

Vapour pressure : 15.5 mm Hg, (37.8 °C), ASTM D 323,

Relative vapour density : no data available

Relative density : 0.95, (15.6 °C), ASTM D-1298


Density : 7.91 lb/gal

Water solubility : Miscible

Solubility in other solvents : no data available

Partition coefficient: n-octanol/water : no data available

Auto-ignition temperature : no data available

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**SAFETY DATA SHEET****COREXIT™ EC9500A**

Thermal decomposition	: no data available
Viscosity, dynamic	: 212.3 mPa.s (0 °C) 79.5 mPa.s (20 °C)
Viscosity, kinematic	: 177 mm <sup>2</sup> /s (0 °C) 70 mm <sup>2</sup> /s (15.6 °C) 22.5 mm <sup>2</sup> /s (40 °C)
Molecular weight	: no data available
VOC	: no data available

**Section: 10. STABILITY AND REACTIVITY**

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: Heat, flames and sparks.  Avoid extremes of temperature.
Incompatible materials	: Strong oxidizing agents
Hazardous decomposition products	: Decomposition products may include the following materials: Carbon oxides Sulphur oxides metal oxides

**Section: 11. TOXICOLOGICAL INFORMATION**


Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

**Potential Health Effects**

Eyes	: Causes serious eye irritation.
Skin	: Health injuries are not known or expected under normal use.
Ingestion	: Health injuries are not known or expected under normal use.
Inhalation	: Harmful if inhaled.
Chronic Exposure	: Health injuries are not known or expected under normal use.

**Experience with human exposure**

Eye contact	: Redness, Pain, Irritation
Skin contact	: No symptoms known or expected.

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Ingestion : No symptoms known or expected.

Inhalation : No information available.


**Toxicity****Product**

Acute oral toxicity : LD50 rat: > 5,000 mg/kg  
Test substance: Product  
LD50 rat: > 5,000 mg/kg  
Test substance: Distillates, petroleum, hydrotreated light  
LD50 rat: > 38,000 mg/kg  
Test substance: Oxyalkylated Fatty Acid Derivative  
LD50 rat: > 36,400 mg/kg  
Test substance: Oxyalkylate Polymer  
LD50 rat: 4,620 mg/kg  
Test substance: Organic Sulfonic Acid Salt  
LD50 mouse: 2,160 mg/kg  
Test substance: Glycol Ether  
LD50 rat: > 16,000 mg/kg  
Test substance: Polyol ester  
LD50 rat: 4,000 mg/kg  
Test substance: Glycol Ether

Acute inhalation toxicity : LC50 rat: > 5.35 mg/l  
Exposure time: 4 hrs  
Test atmosphere: dust/mist  
Test substance: Product  
LC50 rat: 42.1 mg/l  
Exposure time: 4 hrs  
Test substance: Glycol Ether  
LC50 rat: 20 mg/l  
Exposure time: 4 hrs  
Test substance: Organic Sulfonic Acid Salt  
LC50 rat: > 290 mg/l  
Exposure time: 4 hrs  
Test substance: Distillates, petroleum, hydrotreated light

Acute dermal toxicity : LD50 rabbit: > 5,000 mg/kg  
Test substance: Product  
LD50 rabbit: > 3,160 mg/kg  
Test substance: Distillates, petroleum, hydrotreated light  
LD50 rat: > 2,000 mg/kg  
Test substance: Glycol Ether  
LD50 rabbit: 10,000 mg/kg  
Test substance: Organic Sulfonic Acid Salt

Skin corrosion/irritation : Species: rabbit

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	Result: Mild skin irritation Test substance: Product
Serious eye damage/eye irritation	: Species: rabbit Result: Eye irritation Test substance: Product
Respiratory or skin sensitization	: no data available
Carcinogenicity	: no data available
Reproductive effects	: no data available
Germ cell mutagenicity	: no data available
Teratogenicity	: no data available
STOT - single exposure	: no data available
STOT - repeated exposure	: no data available
Aspiration toxicity	: no data available

**Section: 12. ECOLOGICAL INFORMATION****Ecotoxicity**

Environmental Effects <b>Product</b>	: This product has no known ecotoxicological effects.
Toxicity to fish	: LC50 Inland Silverside: 25.2 mg/l Exposure time: 96 hrs Test substance: Product  LC50 Common Mummichog: 140 mg/l Exposure time: 96 hrs Test substance: Product  LC50 Turbot: 75 mg/l Exposure time: 96 hrs Test substance: Product
Toxicity to daphnia and other aquatic invertebrates	: LC50 Acartia tonsa: 34 mg/l Exposure time: 48 hrs Test substance: Product  LC50 Artemia: 20.7 mg/l Exposure time: 48 hrs Test substance: Product  LC50 Mysidopsis bahia (opossum shrimp): 32.23 mg/l Exposure time: 48 hrs Test substance: Product  LC50 Acartia tonsa: 2 mg/l Exposure time: 48 hrs Test substance: Product

**Components**

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Toxicity to algae : Organic sulfonic acid salt  
EC50 *Desmodesmus subspicatus* (green algae): 82.5 mg/l  
Exposure time: 72 h

Propylene Glycol  
EC50 : 19,000 mg/l  
Exposure time: 96 h

**Components**

Toxicity to bacteria : Distillates, petroleum, hydrotreated light  
> 1,000 mg/l

Propylene Glycol  
> 20,000 mg/l

**Components**

Toxicity to fish (Chronic toxicity) : Propylene Glycol  
Chronic Toxicity Value: 2,500 mg/l  
Exposure time: 30 d

**Components**

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Propylene Glycol  
NOEC: 13,020 mg/l  
Exposure time: 7 d

**Persistence and degradability**

The organic portion of this preparation is expected to be readily biodegradable.

**Mobility**

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air : <5%  
Water : 10 - 30%  
Soil : 50 - 70%

The portion in water is expected to be soluble or dispersible.

**Bioaccumulative potential**

Based on a review of the individual components, utilizing U.S. EPA models, this material is not expected to bioaccumulate. The product is readily eliminated.

**Other information**

no data available

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**COREXIT™ EC9500A**

**Section: 13. DISPOSAL CONSIDERATIONS**

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

**Section: 14. TRANSPORT INFORMATION**

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

**Land transport (DOT)**

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

**Air transport (IATA)**

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

**Sea transport (IMDG/IMO)**

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

**Section: 15. REGULATORY INFORMATION**

TSCA list : Not relevant

**EPCRA - Emergency Planning and Community Right-to-Know Act**

**CERCLA Reportable Quantity**

This product does not contain a RQ substance, or this product contains a substance with a RQ, however the calculated RQ exceeds the reasonably attainable upper limit.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**


This material does not contain any components with a section 304 EHS RQ.

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Acute toxicity (any route of exposure)  
Serious eye damage or eye irritation

**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**California Prop. 65**

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This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

**INTERNATIONAL CHEMICAL CONTROL LAWS :**

**United States TSCA Inventory**

The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

**Australia. Industrial Chemical (Notification and Assessment) Act**

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

**Canadian Domestic Substances List (DSL)**

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

**Japan. ENCS - Existing and New Chemical Substances Inventory**

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

**Korea. Korean Existing Chemicals Inventory (KECI)**

All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

**Philippines Inventory of Chemicals and Chemical Substances (PICCS)**

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

**China Inventory of Existing Chemical Substances**

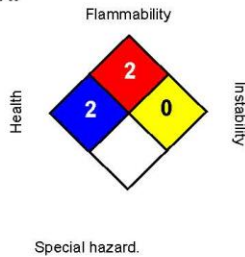
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

**Taiwan Chemical Substance Inventory**

All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

**Section: 16. OTHER INFORMATION**

**NFPA:**




**HMS III:**

<b>HEALTH</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>2</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>

0 = not significant, 1 = Slight,  
2 = Moderate, 3 = High  
4 = Extreme, \* = Chronic

Revision Date : 08/30/2019  
Version Number : 0.0  
Prepared By : Regulatory Affairs

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**COREXIT™ EC9500A**

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.



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## APPENDIX D: Finasol OSR 52 Safety Data Sheet



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**SAFETY DATA SHEET**  
according to Regulation (EC) No. 1907/2006

SDS # : 30034

**FINASOL OSR 52**

Date of the previous version: 2015-03-30

Revision Date: 2017-06-27

Version 2

**Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1. Product identifier**

Product name	FINASOL OSR 52
Trade name	FINASOL OSR 52
Substance/mixture	Mixture

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Dispersant.
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**1.3. Details of the supplier of the safety data sheet**

Supplier	A - TOTAL UK LIMITED One Euston Square 40 Melton Street, London, NW1 2FD UNITED KINGDOM Tel: +44 (0)20 7339 8000 Fax: +44 (0)20 7339 8033
	B - TOTAL FLUIDES 24, cours Michelet, 92800 PUTEAUX, FRANCE Tel: +33 (0)1 41 35 40 00 Fax: +33 (0)1 41 35 82 88

**For further information, please contact:**

Contact Point	A - HSE  B - Service QSE : Tel: +33 (0)1 41 35 33 64 / Fax : +33 (0)1 41 35 33 50 Emergency number 24h/24h: +33 (0)1 41 35 65 00
E-mail Address	A - rm.gb-msds@total.co.uk  B - rmfs.fds@total.com

**1.4. Emergency telephone number**


Emergency telephone: +44 1235 239670

UK: National Poisons Information Service (NPIIS): NHS on 111 or a doctor

**Section 2: HAZARDS IDENTIFICATION**

Version EUUK

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**2.1. Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

For the full text of the H-Statements mentioned in this Section, see Section 2.2.

**Classification**

Skin corrosion/irritation - Category 2 - (H315)

Serious eye damage/eye irritation - Category 1 - (H318)

**2.2. Label elements****Labelled according to**

REGULATION (EC) No 1272/2008

Contains docusate sodium

**Signal word**

DANGER

**Hazard Statements**

H315 - Causes skin irritation

H318 - Causes serious eye damage

**Precautionary statements**

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/attention

P302 + P352 - IF ON SKIN: Wash with plenty of water/soap

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P264 - Wash hands thoroughly after handling

**2.3. Other hazards****Physical-Chemical Properties**

alkaline.

Combustible liquid.


Vapours may form explosive mixtures with air, at high temperatures.

**Properties Affecting Health**

If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious pulmonary lesions (medical survey during 48 hours).

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

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**3.2. Mixture**

Chemical Name	EC-No	REACH Registration Number	CAS-No	Weight %	GHS Classification
docosate sodium	209-406-4	01-2119491296-29	577-11-7	15-25	Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
(2-methoxymethyl(ethoxy)propanol	252-104-2	01-2119450011-60	34590-94-8	15-20	-
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	926-141-6	01-2119456620-43	^	15-20	Asp. Tox. 1 (H304)
Carboxylic acids, d, C6-12 cmpds, with ethanolamine, boric acid cmpd with ethanolamine	400-180-4	01-0000015016-80	^	0-2	Eye Irrit. 2 (H319)
2-Aminoethanol	205-483-3	01-2119486455-28	141-43-5	0-1	STOT SE 3 (H335) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332) Met.Corr 1 (H290)
Bis(2-ethylhexyl) maleate	205-524-5	01-2119552449-30	142-16-5	0-0.2	STOT RE 2 (H373) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

**Additional information**


EC-No. 926-141-6: The EC substance definition and related classification & labelling has been developed in the framework of the Regulation (EC) No 1907/2006 (REACH). For information about the related CAS number see section 15 of this MSDS.  
>30% : Non-ionic surfactants.  
15%-30% : Anionic surfactants.

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Section 4: FIRST AID MEASURES****4.1. Description of first aid measures**

<b>General advice</b>	IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
<b>Skin contact</b>	Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes.
<b>Inhalation</b>	In case of exposure to intense concentrations of vapours, fumes or spray, transport the person away from the contaminated zone, keep warm and allow to rest.
<b>Ingestion</b>	If swallowed, do not induce vomiting - seek medical advice. Risk of product entering the lungs on vomiting after ingestion. In this case, the casualty should be sent immediately to hospital.
<b>Protection of first-aiders</b>	Use personal protective equipment.

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**4.2. Most important symptoms and effects, both acute and delayed**

Eye contact	Risk of serious damage to eyes.
Skin contact	Irritating to skin.
Inhalation	The inhalation of vapours or aerosols may be irritating for the respiratory tract and for mucous membranes.
Ingestion	Potential for aspiration if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause central nervous system depression.

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

Notes to physician	Treat symptomatically.
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**Section 5: FIRE-FIGHTING MEASURES****5.1. Extinguishing media**

Suitable extinguishing media	Foam. Dry powder. Carbon dioxide (CO <sub>2</sub> ).
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter and spread fire.

**5.2. Special hazards arising from the substance or mixture**

Special hazard	Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.
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**5.3. Precautions for fire-fighters**

Special protective equipment for fire-fighters	In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Other information	Cool containers / tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

**Section 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures**

General Information	Use personal protective equipment. Evacuate non-essential personnel. Ensure adequate ventilation, especially in confined areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch or walk through spilled material.
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**6.2. Environmental precautions**

**General information** Prevent further leakage or spillage if safe to do so. Dike to collect large liquid spills. The product should not be allowed to enter drains, water courses or the soil. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

**6.3. Methods and material for containment and cleaning up**

**Methods for cleaning up** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Following product recovery, flush area with water.

**6.4. Reference to other sections**

**Personal protective equipment** See Section 8 for more detail.

**Waste treatment** See section 13.

**Other information** Remove all sources of ignition.

**Section 7: HANDLING AND STORAGE****7.1. Precautions for safe handling**

**Advice on safe handling** For personal protection see section 8.  
Use only in well-ventilated areas.  
Do not breathe vapours or spray mist.  
Avoid contact with skin and eyes.

**Technical measures** Ensure adequate ventilation.

**Prevention of fire and explosion** Handle away from any source of ignition (open flame and sparks) and heat (hot manifolds or casings).  
Design installations (machinery and equipment) to prevent burning product from spreading (tanks, retention systems, interceptors (traps) in drainage systems).

**Hygiene measures** Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product.  
When using, do not eat, drink or smoke.  
Do not dry hands with rags that have been contaminated with product.


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

**Technical measures/Storage conditions** Storage installations should be designed with adequate bunds so as to prevent ground or water pollution in case of leaks or spills.  
Keep away from heat and sources of ignition.  
Keep container tightly closed.

**Materials to avoid** Strong acids, Oxidizing agents.

**Packaging material** Keep only in the original container or in a suitable container for this kind of product: steel, Stainless steel.

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**7.3. Specific use(s)**

Specific use(s) No information available.

**Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****8.1. Control parameters**

Exposure limits Components with workplace control parameters

Chemical Name	European Union	The United Kingdom	Ireland
(2-methoxymethylethoxy)propanol 34590-94-8	TWA 50 ppm TWA 308 mg/m <sup>3</sup> S*	STEL 150 ppm STEL 924 mg/m <sup>3</sup> TWA 50 ppm TWA 308 mg/m <sup>3</sup> Skin	TWA 50 ppm TWA 308 mg/m <sup>3</sup> STEL 150 ppm STEL 924 mg/m <sup>3</sup> Skin
2-Aminoethanol 141-43-5	TWA 1 ppm TWA 2.5 mg/m <sup>3</sup> STEL 3 ppm STEL 7.6 mg/m <sup>3</sup> S*	STEL 3 ppm STEL 7.6 mg/m <sup>3</sup> TWA 1 ppm TWA 2.5 mg/m <sup>3</sup> Skin	TWA 1 ppm TWA 2.5 mg/m <sup>3</sup> STEL 3 ppm STEL 7.6 mg/m <sup>3</sup> Skin

Legend See section 16

**DNEL Worker (Industrial/Professional)**


Chemical Name	Short term, systemic effects	Short term, local effects	Long term, systemic effects	Long term, local effects
docosate sodium 577-11-7			31.3 mg/kg bw/day (dermal) 44.1 mg/m <sup>3</sup> (inhalation)	
(2-methoxymethylethoxy)propanol 34590-94-8			65 mg/kg bw/day (dermal) 310 mg/m <sup>3</sup> (inhalation)	
2-Aminoethanol 141-43-5			1 mg/kg bw/day Dermal	3.3 mg/m <sup>3</sup> Inhalation
Bis(2-ethylhexyl) maleate 142-16-5			186.11 mg/m <sup>3</sup> (inhalation) 0.42 mg/kg bw/day (dermal)	1.95 mg/m <sup>3</sup> (inhalation) 3.91 mg/cm <sup>2</sup> (dermal)

**DNEL General population**

Chemical Name	Short term, systemic effects	Short term, local effects	Long term, systemic effects	Long term, local effects
docosate sodium 577-11-7			18.8 mg/kg bw/day (dermal) 13 mg/m <sup>3</sup> (inhalation) 18.8 mg/kg bw/day (oral)	
(2-methoxymethylethoxy)propanol 34590-94-8			15 mg/kg bw/day (dermal) 37.2 mg/m <sup>3</sup> (inhalation) 1.67 mg/kg bw/day (oral)	
2-Aminoethanol 141-43-5			0.24 mg/kg bw/day Dermal 3.75 mg/kg bw/day Oral	2 mg/m <sup>3</sup> Inhalation

**Predicted No Effect Concentration**

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(PNEC)

Chemical Name	Water	Sediment	Soil	Air	STP	Oral
docusate sodium 577-11-7	0.0066 mg/l (fw) 0.0007 mg/l (mw) 0.066 mg/l (or)	0.653 mg/kg dw (fw) 0.0653 mg/kg dw (mw)	0.138 mg/kg dw		122 mg/l	
(2-methoxymethyl- ethoxy)propanol 34590-94-8	19 mg/l (fw) 1.9 mg/l (mw) 190 mg/l (or)	70.2 mg/kg d.w. (fw) 7.02 mg/kg d.w. (mw)	2.74 mg/kg d.w.		4168 mg/l	
2-Aminoethanol 141-43-5	0.085 mg/l fw 0.0085 mg/l mw 0.028 mg/l or	0.434 mg/kg dw fw 0.0434 mg/kg dw mw	0.0367 mg/kg dw		100 mg/l	
Bis(2-ethylhexyl) maleate 142-16-5	0.001 mg/l (fw) 0.006 mg/l (lr) 0 mg/l (mw)	15.95 mg/kg dw (fw) 1.595 mg/kg dw (mw)	3.19 mg/kg dw		100 mg/l	20 mg/kg

**8.2. Exposure controls****Occupational Exposure Controls****Engineering measures**

Apply technical measures to comply with the occupational exposure limits.

**Personal protective equipment****General Information**

These recommendations apply to the product as supplied.  
If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

**Respiratory protection**

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**Eye protection**

Safety glasses with side-shields.  
If splashes are likely to occur, wear.. Face-shield.

**Skin and body protection**

Wear suitable protective clothing. Protective shoes or boots.


**Hand protection**

Nitrile rubber, Neoprene gloves.  
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

**Environmental exposure controls****General Information**

None in normal conditions.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES**

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**9.1. Information on basic physical and chemical properties**

Colour		orange	
Physical state @20°C		liquid	
Odour		Petroleum solvent	
Odour Threshold		No information available	
<b>Property</b>	<b>Values</b>	<b>Remarks</b>	<b>Method</b>
pH	9 - 10.5		ASTM D 1172
Melting point/range		No information available	
Boiling point/boiling range	> 150 °C > 302 °F		
Flash point	>= 93 °C >= 199 °F		ASTM D 93 ASTM D 93
Evaporation rate		No information available	
Flammability Limits in Air		No information available	
Vapour pressure	40 hPa	@ 30 °C	ASTM D 5191
Vapour density		No information available	
Relative density		No information available	
Density	990 - 1015 kg/m³	@ 20 °C	ISO 12185
Water solubility		No information available	
Solubility in other solvents		No information available	
logPow		Not applicable	
Autoignition temperature		No information available	
Decomposition temperature		No information available	
Viscosity, kinematic	30.1 - 36.7 mm²/s	@ 40 °C	DIN 51162
Explosive properties	Not explosive		
Oxidising properties	No information available		
Possibility of hazardous reactions	No data available		

**9.2. Other information**

Freezing point		No information available
Pour point	-37 °C	ISO 3016

**Section 10: STABILITY AND REACTIVITY****10.1. Reactivity**

General Information	None under normal processing.
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**10.2. Chemical stability**


Stability	Stable under recommended storage conditions.
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**10.3. Possibility of hazardous reactions**

Hazardous reactions	None under normal processing.
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**10.4. Conditions to avoid**

**Conditions to avoid** Heat, flames and sparks. Take precautionary measures against static discharges.

**10.5. Incompatible materials**

**Materials to avoid** Strong acids, Oxidizing agents.

**10.6. Hazardous Decomposition Products**

**Hazardous Decomposition Products** Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot.

**Section 11: TOXICOLOGICAL INFORMATION****11.1. Information on toxicological effects****Acute toxicity Local effects Product Information**


<b>Skin contact</b>	Irritating to skin.
<b>Eye contact</b>	Risk of serious damage to eyes.
<b>Inhalation</b>	Not classified. The inhalation of vapours or aerosols may be irritating for the respiratory tract and for mucous membranes.
<b>Ingestion</b>	Not classified. Potential for aspiration if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause central nervous system depression.
<b>ATEmix (oral)</b>	> 5,000.00 mg/kg
<b>ATEmix (dermal)</b>	> 5,000.00 mg/kg
<b>ATEmix (inhalation-gas)</b>	> 20,000.00 ppm
<b>ATEmix (inhalation-dust/mist)</b>	> 5.00 mg/l
<b>ATEmix (inhalation-vapour)</b>	> 20.00 mg/l

**Acute toxicity - Component Information**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
docusate sodium	> 2100 mg/kg ( Rat )	> 10000 mg/kg ( Rabbit )	
(2-methoxymethylethoxy)propanol	LD50 > 5000 mg/kg ( Rat )	LD50 9510 mg/kg ( Rabbit )	LC50 (7h) 3.35 mg/l (Rat - aerosol)
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	LD50 > 5000 mg/kg bw (rat - OECD 401)	LD50 (24h) > 5000 mg/kg bw (rabbit - OECD 402)	LC50 (8h) > 5000 mg/m <sup>3</sup> (vapour) (rat - OECD 403)
2-Aminoethanol	LD50 1515 mg/kg (Rat)	LD50 1025 mg/kg (Rabbit)	ATE (Cat 4- Vapors)
Bis(2-ethylhexyl) maleate		LD50 14000 mg/kg (rabbit)	LC50 > 5 mg/l (dust)

**Sensitisation**

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<b>Sensitisation</b>	Not classified as a sensitizer.
<b>Specific effects</b>	
<b>Carcinogenicity</b>	Contains no ingredient listed as a carcinogen.
<b>Mutagenicity</b>	Contains no ingredient listed as a mutagen.
<b>Reproductive toxicity</b>	Contains no ingredient listed as toxic to reproduction.
<b>Repeated dose toxicity</b>	
<b>Target Organ Effects (STOT)</b>	
<b>Specific target organ systemic toxicity (single exposure)</b>	This product does not meet the EU criteria for classification.
<b>Specific target organ toxicity - repeated exposure</b>	This product does not meet the EU criteria for classification.
<b>Aspiration toxicity</b>	Not classified.
<b>Other information</b>	
<b>Other adverse effects</b>	Frequent or prolonged skin contact destroys the lipoid cutaneous layer and may cause dermatitis.

**Section 12: ECOLOGICAL INFORMATION****12.1. Toxicity**

Not classified.


**Acute aquatic toxicity - Product Information**

Acute aquatic toxicity							
Compartment	Method	Species	Endpoint type	Values	Unit	Exposure time	Unit
Toxicity to algae	ISO 10253	Skeletonema costatum	EC50	12.07	mg/l	72	hours

**Acute aquatic toxicity - Component Information**

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
docusate sodium 577-11-7		EC50 (48h) = 6.6 mg/l Daphnia magna	LC50 (96h) = 49 mg/l Brachydanio rerio (semi-static)	
(2-methoxy-methoxy)propyl 34590-94-8		LC50 (48h) = 1919 mg/L Daphnia magna	LC50 (96h) > 1000 mg/l (Poecilia reticulata - static)	
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	ErL50 (72h) > 1000 mg/l (Pseudokirchneriella subcapitata - OECD 201) ErL50 (72h) > 1000 mg/l (Pseudokirchneriella subcapitata - OECD 201)	EL50 (48h) > 1000 mg/l (Daphnia magna - OECD 202)	LL50 (96h) > 1000 mg/l (Oncorhynchus mykiss - OECD 203)	-
2-Aminoethanol	EC50(72h) 2.5 mg/l	EC50(48h) 65 mg/l (Daphnia)	LC50(96h) 349 mg/l	

Quick-FDS [f8159-35766-10620-010646] - 2017-09-18 - 09:56:06

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141-43-5	(Selenastrum capricornutum)	magna)	(Cyprinus carpio)	
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**Chronic aquatic toxicity - Product Information**

No information available.

**Chronic aquatic toxicity - Component Information**

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates.	Toxicity to fish	Toxicity to microorganisms
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	NOELR (72h) = 1000 mg/l (Pseudokirchneriella subcapitata - biomass - OECD 201) NOELR (72h) = 1000 mg/l (Pseudokirchneriella subcapitata - growth rate - OECD 201)	NOELR (21 d) = 1,22 mg/l (Daphnia magna - QSAR Petrotox)	NOELR (28d) = 0,17 mg/l (Oncorhynchus mykiss - QSAR Petrotox)	

**Effects on terrestrial organisms**

No information available.

**12.2. Persistence and Degradability****General Information**


No data is available on the product itself. For : Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, &lt;2% aromatics.

Biodegradation							
Type	Method	Sampling time	Specific effects	Values	Unit	Biodegradability	Source
	OECD 301 F	28 days		69	%	Readily biodegradable	

**12.3. Bioaccumulative potential****Product Information** Not applicable.**logPow** Not applicable**Component Information** Not applicable.

Chemical Name	log Pow
(2-methoxy-methyl-ethoxy)propanol - 34590-94-8	1.01

**12.4. Mobility in soil****Soil** Given its physical and chemical characteristics, the product is generally mobile in the ground.**Air** The product evaporates readily.**Water** soluble.**12.5. Results of PBT and vPvB assessment**

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**PBT and vPvB assessment** This product contains no substance considered as PBT and/or vPvB according to REACH regulation annex XIII criteria.

**12.6. Other adverse effects**

**General Information** No information available.

**Section 13: DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods**

**Waste from residues / unused products** Dispose of in accordance with the European Directives on waste and hazardous waste.

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers may contain flammable or explosive vapours.

**EWC Waste Disposal No** According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

**Section 14: TRANSPORT INFORMATION**

**ADR/RID** not regulated

**IMDG/IMO** not regulated

**ICAO/IATA** not regulated

**ADN**


<b>UN/ID No</b>	UN9003
<b>Proper shipping name</b>	SUBSTANCES WITH A FLASH-POINT ABOVE 60°C AND NOT MORE THAN 100°C
<b>Hazard Class</b>	9
<b>Description</b>	UN9003, SUBSTANCES WITH A FLASH-POINT ABOVE 60°C AND NOT MORE THAN 100°C, 9

**Section 15: REGULATORY INFORMATION****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****European Union**

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

**Related CAS number** 64742-47-8: Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics

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**International Inventories**

All the substances contained in this product are listed or exempted from listing in the following inventories:  
 U.S.A. (TSCA)  
 Canada (DSL/NDSL)  
 Europe (EINECS/ELINCS/NLP)  
 Australia (AICS)  
 Korea (KECL)  
 China (IECSC)  
 Japan (ENCS)  
 Philippines (PICCS)  
 New Zealand (NZIoC)  
 Taiwan (TCSI)

**Further information**

No information available

**15.2. Chemical Safety Assessment****Chemical Safety Assessment** No information available**15.3. National regulatory information****The United Kingdom**

- Avoid exceeding occupational exposure limits (see section 8).

**Ireland**

- Avoid exceeding occupational exposure limits (see section 8).


**Section 16: OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3**

H335 - May cause respiratory irritation  
 H314 - Causes severe skin burns and eye damage  
 H318 - Causes serious eye damage  
 H302 - Harmful if swallowed  
 H312 - Harmful in contact with skin  
 H332 - Harmful if inhaled  
 H290 - May be corrosive to metals  
 H315 - Causes skin irritation  
 H319 - Causes serious eye irritation  
 H304 - May be fatal if swallowed and enters airways

**Abbreviations, acronyms**

ACGIH = American Conference of Governmental Industrial Hygienists  
 bw = body weight  
 bw/day = body weight/day  
 EC x = Effect Concentration associated with x% response

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GLP = Good Laboratory Practice  
 IARC = International Agency for Research of Cancer  
 LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals  
 LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals  
 LL = Lethal Loading  
 NIOSH = National Institute of Occupational Safety and Health  
 NOAEL = No Observed Adverse Effect Level  
 NOEC = No Observed Effect Concentration  
 NOEL = No Observed Effect Level  
 OECD = Organization for Economic Co-operation and Development  
 OSHA = Occupational Safety and Health Administration  
 UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material  
 DNEL = Derived No Effect Level  
 PNEC = Predicted No Effect Concentration  
 dw = dry weight  
 fw = fresh water  
 mw = marine water  
 or = occasional release

**Legend** Section 8

TWA: Time Weight Average

STEL: Short Time Exposure Limit

+ Sensitiser  
 \*\* Hazard Designation  
 M: Mutagen

\* Skin designation  
 C: Carcinogen  
 R: Toxic to reproduction


Revision Date: 2017-06-27

Revision Note (M)SDS sections updated: 1, 3, 16.


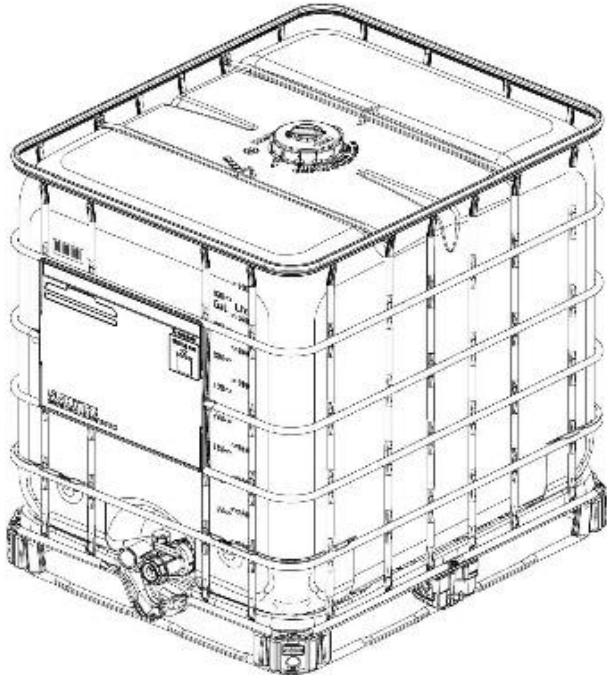
**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**


**This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.**


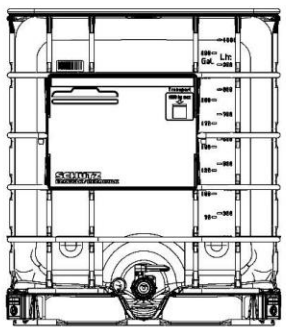
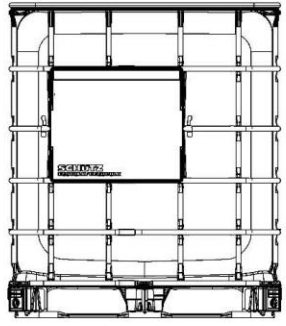
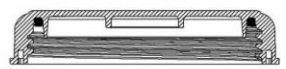
**End of Safety Data Sheet**

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**APPENDIX E: IBC Specifications**


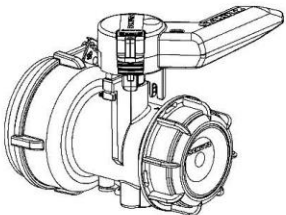
<b>Packaging - Specification</b> ECOBULK		
Transportcontainer ECOBULK 1000 ltr. MX1000 UN EVOH Nat/150R TP Bfly 50 VI Met 3PCA/Steel frame 2-Pit LG:LG/TI		
<b>Article-No.</b>	4027214	<b>Date</b> Mar 13, 2020 Page 1 / 3
		
This picture is for illustration purpose only and does not necessarily correspond to the specified product.		
<b>Weights and measures</b>		
Nominal Capacity	1,000 l	275 gal US
Brimful Capacity	1,060 l	280.027 gal US
Length	1,200 mm	47.240 in
Width	1,000 mm	39.370 in
Height with pallet	1,160 mm	45.670 in
Total weight approx.	56.5 kg	124.7 lbs US
<b>Pallet</b>		
Pallet type	Steel-framepallet, zincod	
Opening height	min. 90mm, 4-way entry	


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<b>Packaging - Specification</b> ECOBULK			
Transportcontainer ECOBULK 1000 ltr. MX1000 UN EVOH Nat/150R TP Bfly 50 VI Met 3PCA/Steel frame 2-Pit LG:LG/TI		SCHÜTZ (UK) LIMITED Claylands Ave Dukeries Ind. Estate WORKSOP NOTTS S81 7BE UNITED KINGDOM	
<b>Article-No.</b>	4027214	Date	Mar 13, 2020 Page 2 / 3
<b>Outer container</b>			
Grid	Steel, galvanized		
Bottom plate	Steel, galvanized		
Corner protector	black		
Label plate	large - 6 field, with Schütz-Ticket		
additional label plate	back side - standard		
			
			
<b>Inner container</b>			
Rectangular blow molded tank of high density polyethylene			
Container	PE-HD, natural		
Permeation barrier	EVOH barrier		
<b>Filling opening</b>			
Screw cap	DN150 / 6", PE-HD, red		
O-ring gasket	TPE		
			



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<b>Packaging - Specification</b> <b>ECOBULK</b>			
Transportcontainer ECOBULK 1000 ltr. MX1000 UN EVOH Nat/150R TP Bfly 50 VI Met 3PCA/Steel frame 2-Plt LG:LG/TI		SCHÜTZ (UK) LIMITED Claylands Ave Dukeries Ind. Estate WORKSOP NOTTS S81 7BE UNITED KINGDOM	
<b>Article-No.</b>	<b>4027214</b>	Date	Mar 13, 2020 Page 3 / 3
Plug	without Plug		
<b>Discharge opening</b>	scr. butterfly-valve DN50/2"		
Outlet valve	PE-HD		
Case	metric		
Connection thread	PP		
Flap gasket / Ball gasket	FKM		
Flange gasket	grey, Handle protection		
Handle color	PE-HD		
Screw cap	PE, foamed		
Screw cap gasket	black		
Screw cap color	PE-HD		
Outlet nozzle	PE-HD		
			
<b>Features</b>			
<b>UN-Marking</b> UN_31HA1Y/MM YY/D/BAM12868-SCHÜTZ#/4056/1724/1060L/56KG/100KPA			
<b>Heavy metals</b> Concentration level of heavy metals (Pb, Cd, Cr VI and Hg) in packaging does not exceed 100 ppm			
<b>Delivery</b> Ready for filling. The customer or filler is responsible for testing the material compatibility of the filling material with the packaging			
This specification is produced and delivered according to the current status of the SCHÜTZ "Quality Management Standard for the Supply of Packaging Products" which can be viewed under the following link: <a href="http://www.schuetz.net/qmstandard">www.schuetz.net/qmstandard</a>			

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## APPENDIX F: Dispersant Spillage Instructions

### Safety


1. Safety is priority
2. PPE is to be worn in the event of any spillage
3. First aid kit located in the GA box
4. Eyewash bottle located in the GA box

### Initial Actions

1. Raise alarm
2. Don PPE (located in GA box)
3. Apply putty to IBC breach if possible
4. Contain or reduce spread using absorbent pads and booms
5. Cover drains with putty mats or drain covers if IBC is not bunded
6. Transfer remaining dispersant into spare empty IBC, using transfer pipe

### Secondary Actions

1. Inform HSEQ representative
2. Manage the spread of dispersant with spill kits, assisted by colleagues
3. Cordon off area and manage clean up
4. Notify relevant authorities if any dispersant makes its way into watercourses

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## APPENDIX G: Boeing Safety Notice for Liquid Cargo



**Commercial  
Aviation  
Services**

# SERVICE LETTER

FLEET SUPPORT ENGINEERING • BOEING COMMERCIAL AIRPLANES • P.O. BOX 3707 • SEATTLE • WASHINGTON 98124-2207

<b>707-SL-02-005</b>	<b>757-SL-02-022</b>	<b>DC-10-SL-02-002</b>
<b>717-SL-02-103</b>	<b>767-SL-02-016</b>	<b>MD-10-SL-02-103</b>
<b>727-SL-02-007</b>	<b>777-SL-02-007</b>	<b>MD-11-SL-02-103</b>
<b>737-SL-02-023</b>	<b>DC-8-SL-02-002</b>	<b>MD-80-SL-02-103</b>
<b>747-SL-02-018</b>	<b>DC-9-SL-02-002</b>	<b>MD-90-SL-02-103</b>

ATA: 0200-30  
15 December 2010

**SUBJECT:** TRANSPORT OF LIQUID CARGO

**MODEL:** ALL

**APPLICABILITY:** All models

**REFERENCE:** IATA Dangerous Goods Regulations, Packing Section 5.0.2.8

### SUMMARY:


This service letter provides guidance information for the transport of large volumes of liquid cargo to avoid unwanted cyclic lateral motions that may cause to flight crew to divert or turn-back.

### BACKGROUND:

A 747-400F operator reported two events when the flight crew experienced significant lateral oscillations due to sloshing of liquid cargo. One event with 238,103 lb. (108,002 kg.) of liquid cargo resulted in an air turn-back due to continued lateral oscillations. A subsequent flight with 118,316 lb. (53,667 kg.) of liquid cargo did not cause noticeable lateral oscillations.

### DISCUSSION:

The transport of a large amount of liquid cargo in large containers or multiple smaller containers can result in cyclic sloshing of the liquid in the void (ullage) at the top of each container. Sufficient ullage must be provided to allow for thermal expansion of the liquid in the container to 55 deg. C (130 deg. F.), per the reference. Sloshing movement of the liquid cargo in the ullage can result in low frequency lateral loads on the airplane. The lateral loads from sloshing in large tanks or multiple smaller tanks can be additive, resulting in lateral oscillations that cause poor ride quality. A large amount of high-density liquid cargo in a container with a large ullage

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707-SL-02-005	757-SL-02-022	DC-10-SL-02-002
717-SL-02-103	767-SL-02-016	MD-10-SL-02-103
727-SL-02-007	777-SL-02-007	MD-11-SL-02-103
737-SL-02-023	DC-8-SL-02-002	MD-80-SL-02-103
747-SL-02-018	DC-9-SL-02-002	MD-90-SL-02-103

15 December 2010  
Page 2 of 3

could, in an extreme case, result in high loads on the airframe that could potentially result in damage to the structure. Boeing is not aware of such tank sizes that are in commercial use and are shipped as airplane cargo.


**BOEING ACTION:**

Boeing has conducted studies on sloshing liquid cargo and has worked with the airline that reported in-service events. Boeing is issuing this service letter to provide operators with recommendations from these studies and from in-service airline experience. Boeing has reviewed this issue for potential safety and determined that sloshing cargo is not a safety issue, but may result in crew action such as air turn-backs if the sloshing results in lateral motions and poor ride quality.

**SUGGESTED OPERATOR ACTION:**

Boeing suggests that operators consider the potential adverse effects from sloshing large volumes of liquid and suggests the following operational considerations:

1. Avoid the use of large tanks with large ullages.
2. Use tanks/containers with baffles, where possible. Baffled tanks will damp the sloshing motion and prevent sustained oscillations.
3. Avoid locating the liquid cargo far from the airplane center of gravity where sloshing can cause larger lateral motion effects on the airframe. Instead, locate high-weight liquid cargo near the center of gravity and preferably over the wing box on the main deck. Liquid cargo in the lower lobe compartments should be loaded just forward or just aft of the wing box.
4. Consider limiting the total weight of liquid cargo to no more than 42% of the airplane cargo capacity. This value has been demonstrated in service on 747-400F airplanes to not cause noticeable lateral oscillations for un-baffled multiple containers.
5. Unit Load Devices (ULD) carrying liquid in containers should have all restraints operative with no missing or inoperative restraints. Where the ULD carrying liquid in containers is restrained using the airplane installed cargo restraints, the weight limit for the cargo position should be reduced by 50% for tanks that are 2/3 full, and reduced by 20% for tanks that are 90% full. Further, if ULD carrying liquid in containers are tied down to the airplane, an additional "slosh" load factor of 2.0 should be used in the

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707-SL-02-005	757-SL-02-022	DC-10-SL-02-002
717-SL-02-103	767-SL-02-016	MD-10-SL-02-103
727-SL-02-007	777-SL-02-007	MD-11-SL-02-103
737-SL-02-023	DC-8-SL-02-002	MD-80-SL-02-103
747-SL-02-018	DC-9-SL-02-002	MD-90-SL-02-103
		15 December 2010
		Page 3 of 3

forward, aft, and side directions for tanks 2/3 full, and a “slosh” load factor of 1.25 in the forward, aft, and side directions for tanks 90% full.

6. If liquid cargo induced airplane lateral oscillations are noted in flight, then the flight crew should consider diversion or air turn-back if the crew is being fatigued or otherwise impaired by the oscillations.
7. If high weights of liquid cargo must be carried in tanks without baffles, consider having the cargo shipped frozen, if freezing will not harm the liquid cargo or surrounding cargo. A review of the planned flight duration should be made to confirm that the cargo will not melt before the end of the flight.


**WARRANTY INFORMATION:**

Warranty remedies are not applicable to the subject discussed in this service letter.

**CMC / EICAS MESSAGE:**

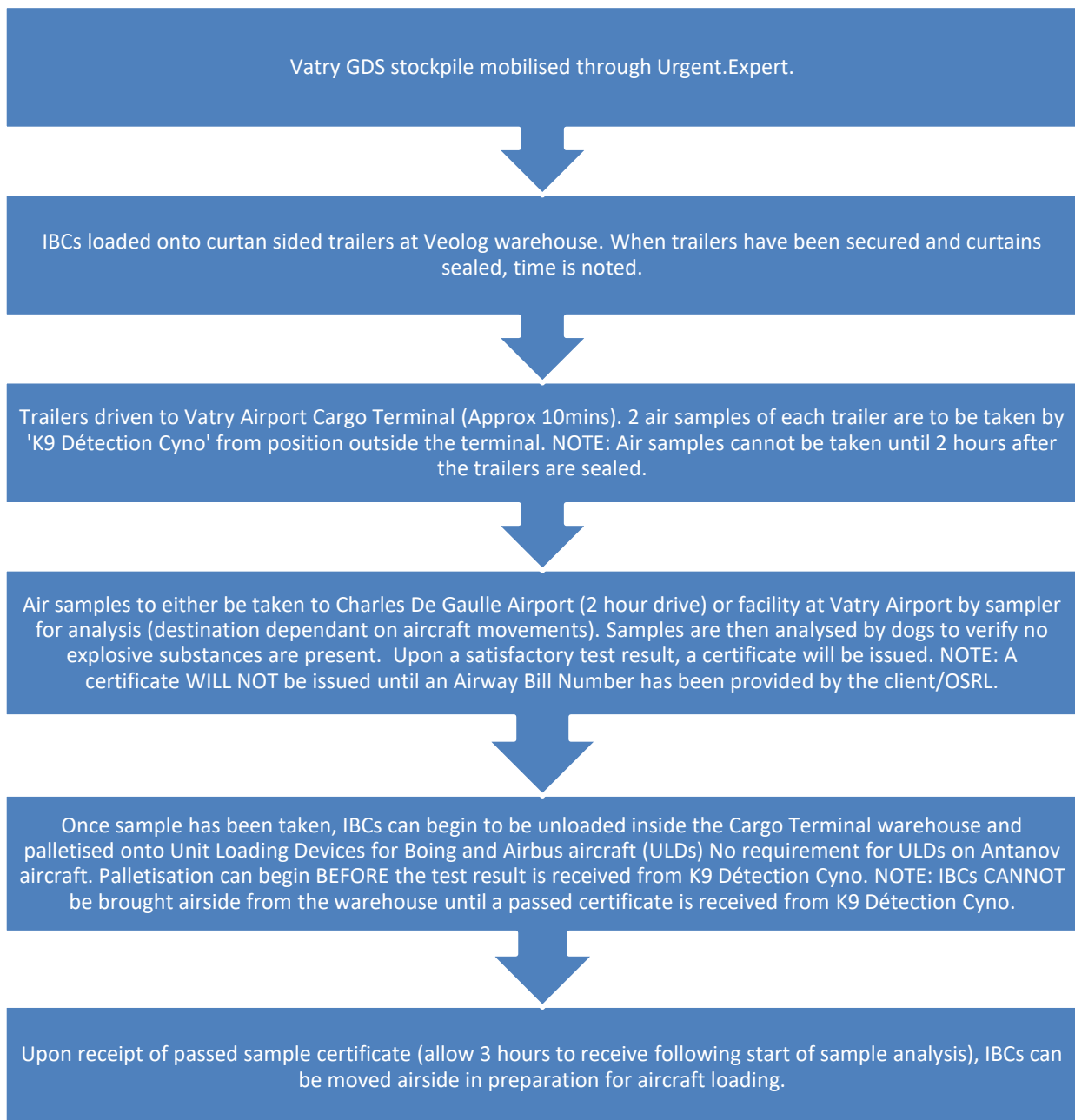
N/A

MGD: pjp

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**APPENDIX H: Dispersant Screening Process Vatry, France**

In the event of a request for dispersant screening by the French Civil Aviation Authority (DGAC), the below process is to be followed (**Figure 19**). OSRL involvement in the process will be limited but attention should be drawn to the additional time required before dispersant can move airside in the event of screening.



**Figure 19 - Flow chart of screening of dispersant at Vatry Airport, France**