



SHIP PRE CARGO MATRIX WHITE OIL PETROLEUM PRODUCTS & COMPONENTS

LIMITATION of LIABILITY

The information given within this guide is provided without warranty of any kind. The use of any of the information herein is undertaken at the user's own risk.

1 PURPOSE AND AUDIENCE

- 1.1 This matrix has been developed by Shell to specifically provide guidance to Shell Group Owned and Time Chartered vessels, and as such is an integral part of the Shell Charterer's Instructions. The guide is also for use by Shell staff employed in the roles of Trading & Shipping Operators, Supply Schedulers, Marine Technical Advisors and other water-front functions. Where a third party makes use of any Information contained in this guide then Shell accept no liability in any way whatsoever.

2 SAFETY

- 2.1 This document does not purport to address all the safety risks involved in cargo storage, transit, and tank cleaning. Tank cleaning methods employed by a given operator must comply with the recommendations contained within the current issue of the "International Safety Guide for Oil Tankers and Terminals", herein "ISGOTT"

3 SCOPE AND LIMITATIONS

- 3.1 The guide is limited to dealing with "white-oil" liquid petroleum fuel and component cargoes only, i.e. cargoes that have a Colour no higher than 2.5 on the ASTM or NPA scale.
- 3.2 The guide does not deliberately encompass the loading of LPG, Black Oil's and high purity Petrochemical cargoes.
- 3.3 The guide explicitly forbids any so called "black-oils" as a last cargoes, i.e. Heavy Fuel Oil, Slurry, Dirty Condensate and Crude Oil, as these require "special" tank cleaning preparations.
- 3.4 Where a vessel declares a last cargo as a "black-oil", then Tank Cleaning may be considered as a mechanism to render the tank(s) suitable to take the product, although this is by exception, and should not be conducted without the explicit guidance and permission of the Charterer.
- 3.5 The use of chemical cleaning agents, such as detergents or caustic soda, is not allowed without the explicit permission of the Charterers.
- 3.6 The Guide does not take account of products that may be carried in a terminal's multi-product pipelines. Where such pipelines carry aviation grades, FAME and certain additives may not be permitted in previous cargoes even though the aviation grade is not being carried on board. In these cases, the receiver is responsible to make such restrictions clear.

4 ALTERNATIVE TECHNIQUES & RESPONSIBILITY

- 4.1 It is recognised that some vessels are equipped with very effective tank stripping systems (super stripping etc). It is also recognised that a vessels crew may have specific knowledge of cargo tank preparative procedures, that are effective, but which may differ from the recommendations herein; for example, experience gained from the frequent transit of cargoes between the same ports. Notwithstanding, vessel owners and operators are responsible for ensuring that cargo tanks are sufficiently clean to take a nominated cargo.

5 LOGIC EMPLOYED IN THE GUIDE

- 5.1 This guide has been generically based upon current knowledge of the different vessel hardware and operational designs employed in the shipping industry. Therefore the particular guidance may not necessarily be the most appropriate for the operation at hand, and at times may be overly or under prescriptive.
- 5.1 The guide was formulated with consideration of the following;
- The typical volumes, per preparation method, of last cargo left in the vessel cargo tanks and lines, post discharge. This would include any Remaining On Board volume at the tank bottom (ROB), the likely tank wall "clingage" amount and anticipated vapour left in the tank space.
 - The Physical and Chemical Characteristics of both the last cargo and of that to be loaded, particularly those critically affected, such as; Flash point, Sulphur, Benzene, Oxygenates (MtBE etc), Lead, Viscosity (clingage), Boiling range, Colour
- 5.3 The logic used in this guide also assumes that;
- All the ships pipelines are fully drained of previous product.
 - That the suggested tank preparations are carried out effectively.

6 FURTHER NOTES ON DEFINITIONS

- 6.1 Where the Matrix states that a product is "Not Compatible" with a tank(s) previous contents, then that product should not be loaded into that tank(s). Tank Cleaning may be considered as a mechanism to render the tank(s) suitable to take the product, but this is by exception, and should not be conducted without the explicit guidance and permission of the Charterer, or for Shell Trading, the Quality Assurance Department STO/3.
- 6.2 Where the Matrix states "Not Compatible" with Aviation Grades, the product to be loaded, even after Tank Cleaning, is still forbidden. At least one acceptable buffer product cargo should be carried before considering previous cargo compatibility. If FAME, Lubes and Veg Oils have been carried in the previous 3 cargoes, this is a cause for concern. **You should seek advice from the Quality Assurance Department STO/3.**

7 PRODUCT NAMES AND CHARACTERISTICS

This section of the guide provides general background information of the materials being handled. The data herein is based upon general knowledge of the product, and may not be fully representative of the actual material at a given production location.

8 ADMINISTRATION AND FEEDBACK ABOUT THIS GUIDE

This document is presently owned and controlled by Shell International Trading and Shipping company limited Quality Assurance Department STO/3. As new product specifications, initiatives and operating practices emerge within the oil industry, it is inevitable that this guide will need to be reviewed and in some cases amended. In this regard please direct any feedback that you may have to; Quality Assurance Department STO/3.



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KEY to DEFINITIONS FOR TANK PREPARATIONS

Key	Detail and Requirement
WD	Previous cargo is acceptable, so long as the cargo tank, pump columns and pipe lines are " Well Drained " by the ships stripping system to minimise the ROB - any ROB that does remain should only ever be in the pump well. Pump columns, pipe lines and drops should be cleared and drained free of all free-standing product and water. <i>An ROB volume in excess of 0.05% of the Individual Tank capacity does not meet the well drained criteria.</i>
BF	First follow the WD procedure, then carry out a " Bottom Flush " with water of each cargo tank, drain well to remove all free-standing water/product.
BF-VP	First follow the WD procedure, then carry out a " Bottom Flush " with water of each cargo tank, drain well to remove all free-standing water/product, and either <i>Ventilate or Purge</i> the tank atmospheres ⁽²⁾ .
CW	First follow the WD procedure, then the cargo tank(s) and lines need to be " Cold Water Washed ", drained well to remove all free-standing water/product. ⁽³⁾
CW-VP	First follow the WD procedure, then the cargo tank(s) and lines need to be " Cold Water Washed ", drained well to remove all free-standing water/product, and either <i>Ventilate or Purge</i> the tank atmospheres ⁽²⁾⁽³⁾
CWM	First follow the WD procedure, then the cargo tank(s) and lines need to be " Cold Water Washed ", drained well to remove all free-standing water/product, then <i>Rendered Gas-Free and Mop</i> the tanks dry. ⁽³⁾
CFW	First follow the WD procedure, then cargo tank(s) and lines need to be washed with " Cold Fresh Water ". The bulk washing may be conducted with Cold Sea Water so long as a final wash with " Cold Fresh Water " is conducted. After washing the tank must be drained well to remove all free-standing water/product, <i>Rendered Gas-Free and Mopped</i> dry. ⁽³⁾
HW	First follow the WD procedure, then the cargo tank(s) and lines need to be " Hot Water Washed ", drained well to remove all free-standing water/product, and either <i>Ventilate or Purge</i> the tank atmospheres ⁽²⁾⁽³⁾ .
HWM	First follow the WD procedure, then the cargo tank(s) and lines need to be " Hot Water Washed ", drained well to remove all free-standing water/product, then <i>Rendered Gas-Free and Mopped</i> dry. ⁽³⁾
HFW	First follow the WD procedure, then cargo tank(s) and lines need to be washed with " Hot Fresh Water ". The bulk washing may be conducted with Hot Sea Water so long as a final wash with " Hot Fresh Water " is conducted. After washing the tank must be drained well to remove all free-standing water/product, <i>Rendered Gas-Free and Mopped</i> dry. ⁽³⁾
NC	The last cargo is " Not Compatible " with the product to be loaded and therefore the product should not be loaded into the tank(s).

EXPLANATORY NOTES

1. ROB

Refers to the quantity Remaining On Board the vessel after discharge of the carried cargo.

2. Purging, Ventilating or Gas-Free

Where a guidance is given to either **Purge or Ventilate** a tank atmosphere, then the vessel operator should perform one of the following procedures depending on the whether the vessel is equipped with an Inert Gas System;

No IGS - If the Vessel is NOT equipped with an Inert Gas System, then Tank atmospheres to be reduce to 10% or less of the LEL by means of Ventilation

With IGS - If the Vessel IS equipped with an Inert Gas System, then Tank atmospheres to be reduce to 2% vol Hydrocarbon vapour by means of Purging with Inert Gas.

Where a guidance is given to **Gas-Free** a tank atmosphere, then the vessel operator should purge or ventilate the tank to 0% hydrocarbon vapour.

3. Tank Washing on Non-Inerted Vessels

On vessels not fitted with inert gas, ISGOTT guidance 11.3.5.2 MUST be followed and cleaning regimes given here must be modified accordingly. Key modifications include:

Prior to washing, tank bottoms and all lines to be flushed and drained to slop tank

Prior to hot washing tanks having contained low flash cargoes should undergo a full cycle cold wash

SHIP PRE CARGO MATRIX WHITE PRODUCTS

CARGO TO BE LOADED

UN 1202 Diesel/Gasoline containing 0- 5% FAME / Biodiesel	UN 1202 Diesel/Gasoline containing 5- 15% FAME / Biodiesel	UN 1202 10ppm - ULSD Diesel fuel ADO, AGO No Bio Comp	UN 1202 50ppm - ULSD Diesel fuel ADO, AGO No Bio Comp	UN 1202 Detergent Addivated 10ppm Diesel fuel V-Power Diesel	UN1202 & 1223 GTL Kero & GTL Diesel Synthetic Distillate No Bio Comp	UN 1202 Gas Oil - 2000ppm GSOIL DYED IGO, GOCI No Bio Comp	UN 1202 Gas Oil - 2000ppm GSOIL UNDYED IGO, GOCI No Bio Comp	UN 1203 10 ppm - Gasoline PU10, SU10, ULG	UN 1203 50 ppm - Gasoline PU50, SU50, ULG	UN 1223 & 1863 Jet A1 & Kerosene AVTUR	UN 1203 AVGAS 100LL (Leaded Mogas)	UN 2398 & 1149 MTBE & ETBE Methyl or Ethyl Tert Butyl Ether	UN 1307 Xylene / UN 1294 Toluene / UN 1268 Mixed Aromatics	UN 3295 Benzene Heart Cut BHC, HCB	UN 1993 Natural Gas Condensate <2.5 Colour ASTM/NPA	UN 3295 PyGas Pygas-Tail Pyrolysis Gasoline	UN 3295 Cat Cracked Gasoline LCCG, HCCG, FRCCG	UN 3295 Platformate Reformate	UN 1268 Naphtha Naphtha platfeed	UN 3295 Isomerate Gasoline compon	UN 3295 Alkylate Gasoline compon	UN N/A FAME, RME, SME, TME, PME Distillates with >15% Bio Comp	UN1170 Ethanol 100% EtOH Ethyl Alcohol	UN1202 Cycle Oils LCO & HCO	UN N/A Vegetable Oil MO, RO, PO, TO	UN 1202 Lube Base Oil (not a finished Lubricant)	Black Oil's Inc: Crude Oil, Fuel Oil, Dirty Condensate, Waxy Dist'			
UN 1202 ULSD - 10ppm Diesel fuel ADO, AGO 0 - 15% Bio	WD CWM if previous sulphur > 500ppm or if dyed	WD CWM if previous sulphur > 500ppm or if dyed	Same Grade	WD	WD	CWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	CWM	HWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	WD	HWM	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	NC			
UN 1202 ULSD - 50ppm Diesel fuel ADO, AGO 0 - 15% Bio	WD CWM if previous sulphur >2000ppm or if dyed	WD CWM if previous sulphur >2000ppm or if dyed	Same Grade	WD	WD	CWM	WD	CWM	CWM	WD	CWM	CWM	WD	CWM	HWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	WD	HWM	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	NC			
UN 1202 Detergent Addivated 10ppm Diesel fuel V-Power Diesel	WD CWM if previous sulphur > 500ppm or if dyed	WD CWM if previous sulphur > 500ppm or if dyed	Same Grade	WD	WD	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	WD	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	CWM	Must be dry as Very Water Sensitive	WD	WD	HWM	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	Must be dry as Very Water Sensitive		
UN 1223 & 1202 GTL Kero & Diesel Gas To Liquids Synthetic Distillate 0 - 15% Bio	WD CWM if previous sulphur > 500ppm or if dyed	WD CWM if previous sulphur > 500ppm or if dyed	Same Grade	WD	WD	CWM	CWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	CWM	HWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	WD	HWM	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	NC		
UN 1202 Gas Oil 2000 ppm GSOIL DYED IGO, GOCI 0 - 15% Bio	WD	WD	Same Grade	WD	WD	WD	Same Grade	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	HW HWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	WD	HW HWM if to-load contains bio component	Cleaning Regime Dependent on Grade Discharged Seek advice	HW HWM if to-load contains bio component	NC			
UN 1202 2000 ppm Gasoil undyed IGO, GOCI 0 - 15% Bio	WD	WD	Same Grade	WD	WD	CW	Same Grade	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	HW HWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	WD	HW HWM if to-load contains bio component	Cleaning Regime Dependent on Grade Discharged Seek advice	HW HWM if to-load contains bio component	NC			
UN 1203 10 ppm Gasoline PU10, SU10, ULG	WD	WD	Same Grade	WD	WD	CW	Same Grade	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	HW	BF or CW	BF or CW	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC			
UN 1203 50 ppm Gasoline PU50, SU50, ULG	WD	WD	Same Grade	WD	WD	CW	Same Grade	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	CW-VP CWM if to-load contains bio component	WD	CW-VP CWM if to-load contains bio component	HW	WD	WD	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC			
UN 1223 Kerosene Class C2 Burning Oil	WD	WD	Same Grade	WD	WD	CW	Same Grade	BF-VP or CW-VP	BF-VP or CW-VP	Same Grade	CW-VP	BF-VP or CW-VP	WD	CW-VP	HW	CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN 1223 & 1863 Jet A1 Kerosene AVTUR Aviation Fuel	HWM	Stringent HWM only if tank coatings good Buffer + HWM Recommended	Same Grade	WD	WD	CWM	Same Grade	CWM	CWM	Same Grade	CWM	NC	WD	CWM	HWM = If NGC Colour <2.5 NPA Otherwise NC	CWM	CWM	CWM	CWM	CWM	CWM	NC	NC	HWM	NC	NC	NC	NC		
UN 1203 AVGAS 100LL Aviation Fuel	HWM	Stringent HWM only if tank coatings good Buffer + HWM Recommended	Same Grade	CWM	CWM	CWM	Same Grade	CWM	CWM	Same Grade	NC	WD	CWM	HWM = If NGC Colour <2.5 NPA Otherwise NC	CWM	WD	WD	WD	WD	WD	WD	NC	NC	HWM	NC	NC	NC			
UN 2398 & 1149 MTBE & ETBE Methyl or Ethyl Tertiary Butyl Ether	HWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	NC If to-load is Chemical Grade WD = If to-load is for other end use	NC If to-load is Chemical Grade WD = If to-load is for other end use	WD	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade HW = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	NC If to-load is Chemical Grade HW = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade HW = If to-load is for Mogas Blend	NC	
UN 1307 Xylene/UN 1294 Toluene/UN 1268 Mixed Aromatics	HWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	NC If to-load is Chemical Grade WD = If to-load is for other end use	NC If to-load is Chemical Grade WD = If to-load is for other end use	WD	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade HW = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM If to-load is Chemical Grade WD = If to-load is for Mogas Blend	NC If to-load is Chemical Grade HW = If to-load is for Mogas Blend	HWM If to-load is Chemical Grade HW = If to-load is for Mogas Blend	NC	
UN 3295 Benzene Heart Cut BHC, HCB	CW	CW	CW	CW	CW	CW	CW	CW	CW	CW	NC	NC	WD	Same Grade	HW	CW	WD	WD	WD	WD	WD	WD	HW	NC	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN 1993 Natural Gas Condensate (Crude feedstock)	WD	WD	WD	WD	WD	WD	WD	WD	WD	WD	NC	NC	WD	Same Grade	Same Grade	WD	WD	WD	WD	WD	WD	WD	HW	NC	WD	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC or WD = If Cond' is for Crude Oil feedstock		
UN 3295 PyGas Pygas-Tail Pyrolysis Gasoline	WD	WD	WD	WD	WD	CW	CW	WD	WD	CW	CW	NC = If Chemical Pygas Grade WD = If Mogas Blend Stock	WD	WD	HW	Same Grade	WD	WD	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN 3295 Cat Cracked Gasoline LCCG, HCCG, FRCCG	WD	WD	WD	WD	WD	CW	CW	WD	WD	CW	CW	WD	WD	WD	HW	Same Grade	WD	WD	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN 3295 Platformate Reformate Mogas or Chem	WD	WD	WD	WD	WD	HFV = If Chem Feed Stock CW = If Mogas Blend Stock	HFV = If Chem Feed Stock CW = If Mogas Blend Stock	NC = If Chem Feed Stock WD = If Mogas Blend Stock	NC = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock CW = If Mogas Blend Stock	NC = If Chem Feed Stock CW = If Mogas Blend Stock	NC = If Chem Feed Stock WD = If Mogas Blend Stock	WD	WD	NC = If Chem Feed Stock HW = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	Same Grade	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	CFV = If Chem Feed Stock WD = If Mogas Blend Stock	NC If to-load is Chem Feed Stock HW = If Mogas Blend Stock	HFV = If Chem Feed Stock HW = If Mogas Blend Stock	NC
UN 1268 Naphtha Naphtha platfeed	HW	HW	CW	CW	CW	CW	CW	CW if Oxy Free Mogas Otherwise HW	CW if Oxy Free Mogas Otherwise HW	WD	NC	NC	WD	WD	HW	WD	WD	WD	WD	WD	WD	HW	NC	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC			
UN 3295 Isomerate Gasoline component	WD	WD	WD	WD	WD	CW	CW	WD	WD	CW	CW	WD	WD	WD	HW	WD	WD	WD	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN 3295 Alkylate Gasoline component	WD	WD	WD	WD	WD	CW	CW	WD	WD	CW	CW	WD	WD	WD	HW	WD	WD	WD	WD	WD	WD	WD	HW	WD	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC		
UN N/A FAME, RME, SME, TME, PME Distillates with >15% Bio Comp	WD	WD	WD	WD	WD	CWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	CWM	HWM	CWM	CWM	CWM	CWM	CWM	CWM	CWM	WD	WD	HWM	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	NC		
UN 1170 Ethanol 100% EtOH Ethyl Alcohol	HWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	HWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	NC = If to-load is Chemical Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	HFV = If Chem Feed Stock HW = If Mogas Blend Stock	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	CWM = If to-load is Chem Grade WD = If to-load is for Mogas Blend	HW	Cleaning Regime Dependent on Grade Discharged Seek advice	HWM	NC
UN 1202 Cycle Oils LCO & HCO	WD	WD	WD	WD	WD	WD	WD	BF-VP or CW-VP	BF-VP or CW-VP	WD	CW	BF-VP or CW-VP	WD	BF-VP or CW-VP	HW	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	BF-VP or CW-VP	Cleaning Regime Dependent on Grade Discharged Seek advice	HW	NC	



**SHIP PRE CARGO MATRIX
WHITE OIL PETROLEUM PRODUCTS & COMPONENTS**

PRODUCT NAMES AND CHARACTERISTICS

UN No	Matrix Title	Generic Product	Grade Names	Approximate Quality Data (for guidance only)			Main characteristics
				Flash Point degC	Density, kg/M3	Sulphur (ppm)	
1202	AD10 - 10ppm	Sulphur Free Diesel - 10ppm S	AD10, ZSD, Commercial Diesel. V-Power Diesel (base fuel no retail additive)	above 56	840	10 max	Straw, amber, lime coloured liquid. Water sensitive and Highly sulphur sensitive cargo. May contain FAME
1202	ULSD - 50ppm	Ultra Low Sulphur Diesel - 50ppm S	ULSD, City diesel, Low sulphur diesel. V-Power Diesel (base fuel no retail additive)	above 56	840	50 max	Straw, amber, lime, coloured liquid. Water sensitive & Sulphur sensitive cargo. May contain FAME
1202	V-Power Diesel	Detergent Additivated Diesel	V-Power Diesel	above 56	840	10 max	Straw, amber, lime, coloured liquid. 10ppm Sulphur Diesel with a very high dose of retail detergent additive. Sulphur & a Very Water sensitive cargo.
1202	2000ppm Gasoil Un-Dyed	Gas Oil - 2000ppm S	Industrial Gas Oil, IGO, GOCl, DGO, AGO, No.2FO, Thermally cracked G/O, Straight run G/O, MGO	above 60	840 to 875	2,000 max	Diesel / Process gas oil – straw, amber, lime green or gold coloured liquid. Water sensitive cargo.
1202	2000ppm Gasoil Dyed	Gas Oil - 2000ppm S	Industrial Gas Oil, IGO, GOCl, DGO, AGO, No.2FO, Thermally cracked G/O, Straight run G/O, MGO	above 60	840 to 875	2,000 max	As above Diesel / Process gas oil, but Dyed Red or Yellow for UK Customs purposes. Water sensitive cargo.
1203	10ppm Gasoline	Unleaded Gasoline - 10ppm S	PU10, SU10, V-Power, UMS, ULMS, ULG95, ULG97, LRP	below -20	740	10 max	Amber or lime green, highly flammable and volatile liquid. No lead allowed, Highly Sulphur Sensitive.
1203	50ppm Gasoline	Unleaded Gasoline - 50ppm S	PU50, SU50, V-Power, UMS, ULMS, ULG95, ULG97, LRP	below -20	740	50 max	Amber or lime green, highly flammable and volatile liquid. No lead allowed, Sulphur Sensitive.
1863	Jet A1	Aviation Turbine Fuel	ATK, Avtur, Dual Purpose Kerosene	above 38	800	3,000 max	Colourless to pale yellow, low viscosity liquid. High Quality. Sensitive to particulate, water, salt, detergent, oxygenates, FAME, lead, copper, zinc and veg oils. Only approved additives and dyes allowed.
1223	Kerosene	Kerosene	RSK, Straight run kero, Premium kero, burning oil, hydrotreated kero	above 38	800	2,000 max	Colourless to pale yellow liquid. Odour and colour sensitive product. May or may not be Customs Marked with SY124 (Yellow Dye) and in UK Coumarin
1203	AVGAS	Aviation Gasoline	Avgas 100LL, Aviation Gasoline	below -20	720	500 max	Clear, blue, low viscosity, volatile liquid. High Quality. Sensitive to particulate, water, salt, detergent, oxygenates (ethanol) and Veg Oils. Only approved additives and dyes allowed. Contains Lead.
2398 & 1149	MTBE & ETBE	Oxygenates (Ether Oxygenates)	MTBE, ETBE, TAME, Methyl and Ethyl Tertiary Butyl Ether	below -20	740 to 746	1 or 10 max	Chemical ethers containing organically bound oxygen, water white colour, pungent odour, volatile, sulphur sensitive.
1307 & 1294	Xylenes-C8 & Toluene	Aromatics	Xylene and Toluene	below 10	880	1 max	Petro-Chemicals, water white colour, volatile. Water, Sulphur & oxygenate sensitive cargoes.
3295	Benzene Heart Cut	Benzene Heart Cut	BHC, HCB	below zero	810	upto 50	Clear colourless volatile liquid, with approx 30 to 60% benzene. Water, Sulphur & oxygenate sensitive cargo.
1993	Nat Gas Condensate	Condensate	Gas Field Condensate, NG (Natural Gas Liquids)	below -20	660 to 760	upto 5,000	This feedstock quality varies widely depending on the field source. It can be water white to very brown in colour, very high in Sulphur, H2S and Mercaptans. Condensate can put other grades off-spec on odour and corrosion test. May contain upto 10% Benzene.
3295	Pygas	Pyrolysis Gasoline	Pygas, Ethylene Cracker Bottoms	below -20	830 to 860	upto 500	Pale yellow to brown coloured volatile liquid, very pungent odour, rich in Olefins, Dienes and upto 20% Benzene.
3295	Pygas-tail	Pyrolysis Gasoline	Hydrotreated Pygas	below -20	830 to 860	upto 500	Pale yellow coloured volatile liquid, rich in Aromatics & Benzene.
3295	FR Cat Cracked Gasoline	Catalytically Cracked Gasoline	Cat. Cracked spirit, FRCCG, LCCG, HTCCG	below -20	670 to 840	upto 300	Pale yellow to yellow coloured liquid, pungent gasoline odour, rich in Olefins. Sulphur & oxygenate sensitive cargoes.
3295	Platformate / Reformate	Aromatic Gasoline Component & Chemical Feedstock	Reformate or Platformate	below -20	800	1 or 10 max	Clear virtually colourless, volatile liquid. No lead allowed, low sulphur. Contains Benzene up to 10%vol.
1268	Naphtha	Light Distillate Feedstock	Naphtha, Straight run gasoline, Platfeed Naphtha, Full Range Naphtha, Tops	below -20	660 to 760	upto 500	Clear, virtually colourless, volatile liquid. As these grades are used as feedstock's they may put other grades off-spec on odour and corrosion test. May contain Benzene up to 10% vol.
1223 & 1202	GTL Kero & Diesel	Gas To Liquid Middle Distillate	GTL Kero, GTL Diesel, SMDSGO, Sarasol85	38 to 60	820	below 10	Colourless, low odour liquids. High quality Fuel component. Sulphur sensitive cargo.
1170	Ethanol	Pure Ethanol (95%+)	Ethanol, Potable Ethanol, EtOH, Ethyl Alcohol, E100, E95	below +20	785	below 10	Colourless volatile & toxic liquid. Completely water soluble. Water, Salt and Sulphur sensitive cargo.
1202	Cycle Oil	Cycle oil	LCO, HCO, Light Cycle Oil, Heavy Cycle Oil	above 50	900 to 970	upto 2,000	A heavy cat cracked Gas Oil component, mildly viscous, pale yellow to dark brown colour. Water sensitive as difficult to drop out.
3295	Alkylate	Gasoline component - Alkylate	Alkylate, Alkylation Gasoline	below -20	700	upto 20	Colourless volatile liquid with a sweet odour,
N/A	FAME	Fatty Acid Methyl Ester	Methyl Esters of; Rape, Soya, Tallow, Palm, Used Cooking Oil etc, RME, SME, TME, POME, UCOME	above 55	circa 880	10 max	Pale yellow to amber brown coloured slightly viscous liquid. Water sensitive cargo. Surface active and may adhere to pipelines and tank sides even after intermediate cargoes.
N/A	Veg Oil	Vegetable Oil (raw/un-esterified)	Palm Oil, Soya Oil, Sunflower Oil, Rape/Canola Oil, Tallow, Used Cooking Oil; PO, SO, RO, KO, TO, UCO,	above 55	circa 880	10 max	Pale yellow to amber/dark brown coloured viscous liquid. Water sensitive cargo. Cleaning regimes will change with the specific grade discharged.
1202	Lubricant Base Oils	Mineral Base Oil (Paraffinic) Lubricating Base Oil (Naphthenic)	Multiple: LVI, MVIN, MVI P, HVI, X HVI, SN, N etc, usually followed by viscosity number e.g. SN 500	above 100	880 to 960		High purity cagoes, water, salt, sediment and viscosity sensitive. Refer to Lubricating Oils Tank Cleaning Tables