

Anexo III

Fichas com Dados de Segurança (FDS)

Fichas com Dados de Segurança (FDS)



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 1 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão: Todas as anteriores

1 - IDENTIFICAÇÃO

Nome do produto: PETRÓLEO

Código interno de identificação: Pb0113_p

Principais usos recomendados para a substância ou mistura: Uso em refinarias para obtenção de seus produtos derivados, como gasolina, diesel, lubrificantes, nafta, querosene de aviação, entre outros.

Nome da empresa: Petróleo Brasileiro S. A.

Endereço: Avenida Chile, 65
20035-900 Rio de Janeiro (RJ) Brasil

Telefone: 0800-728-9001

Telefone para emergências: 0800-728-9001

2 - IDENTIFICAÇÃO DE PERIGOS

Classificação de perigo do produto: Líquidos inflamáveis – Categoria 1
Corrosivo/irritante à pele – Categoria 3
Lesões oculares graves/irritação ocular – Categoria 2B
Mutagenicidade em células germinativas – Categoria 2
Carcinogenicidade – Categoria 1B
Tóxico à reprodução – Categoria 2
Toxicidade para órgãos-alvo específicos – Exposição única – Categoria 3
Toxicidade para órgãos-alvo específicos – Exposição repetida – Categoria 1
Perigo por aspiração – Categoria 1
Perigo ao ambiente aquático – Categoria 2
Toxicidade aquática crônica – Categoria 2

Sistema de classificação utilizado: Norma ABNT-NBR 14725-2:2009 – versão corrigida 2:2010.
Sistema Globalmente Harmonizado para a Classificação e Rotulagem de Produtos Químicos, ONU.



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 2 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão: Todas as anteriores

**Outros perigos que não resultam
em uma classificação:**

Os vapores podem formar misturas explosivas com o ar.

ELEMENTOS APROPRIADOS DA ROTULAGEM

Pictogramas:



Palavra de advertência:

PERIGO

Frases de perigo:

Líquido e vapores extremamente inflamáveis.

Provoca irritação moderada à pele.

Provoca irritação ocular.

Suspeito de provocar defeitos genéticos.

Pode provocar câncer.

Suspeita-se que prejudique a fertilidade ou o feto.

Pode provocar irritação respiratória.

Pode provocar sonolência e vertigem.

Provoca danos aos pulmões, sangue, rins, fígado e timo por exposição repetida ou prolongada.

Pode ser fatal se ingerido e penetrar nas vias respiratórias.

Tóxico para os organismos aquáticos, com efeitos prolongados.

Frases de precaução:

Evite a liberação para o meio ambiente.

EM CASO DE INGESTÃO: Contate imediatamente um CENTRO DE INFORMAÇÃO TOXICOLÓGICA ou um médico.

EM CASO DE CONTATO COM A PELE (ou o cabelo): Retire imediatamente toda a roupa contaminada. Enxágue a pele com água ou tome uma ducha.

EM CASO DE INALAÇÃO: Remova a pessoa para local ventilado e a mantenha em repouso numa posição que não dificulte a respiração.

EM CASO DE CONTATO COM OS OLHOS: Enxágue



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 3 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

cuidadosamente com água durante vários minutos. No caso de uso de lentes de contato, remova-as, se for fácil. Continue enxaguando.

EM CASO DE exposição ou suspeita de exposição: Consulte um médico.

Em caso de incêndio: Para a extinção utilize espuma para hidrocarbonetos, neblina d'água, pó químico seco e dióxido de carbono (CO₂).

3 - COMPOSIÇÃO E INFORMAÇÕES SOBRE OS INGREDIENTES

>>>SUBSTÂNCIA DE PETRÓLEO

Nome químico comum ou nome técnico: Petróleo Bruto.

Grupo de substância de petróleo: Óleos brutos são compostos por hidrocarbonetos parafínicos, naftênicos (cicloparafínico) e aromáticos. A identificação é baseada na proporção predominante que apresenta similaridade com moléculas de hidrocarbonetos. Esta categoria engloba o petróleo leve, médio e pesado, assim como os óleos extraídos de areias asfálticas.

Sinônimo: Óleo cru; destilado de petróleo, óleo de petróleo.

Número de registro CAS: 8002-05-9

Ingredientes que contribuam para o perigo: Este produto é uma mistura variável de hidrocarbonetos e pode conter quantidades variáveis de contaminantes orgânicos e inorgânicos.

4 - MEDIDAS DE PRIMEIROS SOCORROS

Inalação: Remova a vítima para local ventilado e a mantenha em repouso numa posição que não dificulte a respiração. Caso sinta indisposição, contate um CENTRO DE INFORMAÇÃO TOXICOLÓGICA ou um médico. Leve esta FISPQ.

Contato com a pele: Lave a pele exposta com quantidade suficiente de água para remoção do material. Em caso de irritação cutânea: Consulte um médico. Leve esta FISPQ.



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 4 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

Contato com os olhos:

Enxágue cuidadosamente com água durante vários minutos. No caso de uso de lentes de contato, remova-as, se for fácil. Continue enxaguando. Caso a irritação ocular persista: consulte um médico. Leve esta FISPQ.

Ingestão:

Não induza o vômito. Nunca forneça algo por via oral a uma pessoa inconsciente. Lave a boca da vítima com água em abundância. Caso sinta indisposição, contate um CENTRO DE INFORMAÇÃO TOXICOLÓGICA ou um médico. Leve esta FISPQ.

Sintomas e efeitos mais importantes, agudos ou tardios:

Provoca irritação moderada à pele com vermelhidão e ressecamento; e irritação ocular com vermelhidão e lacrimejamento. Pode ser fatal se ingerido e penetrar nas vias respiratórias com pneumonia química. A exposição única pode provocar irritação das vias respiratórias com tosse, dor de garganta e falta de ar; e depressão do sistema nervoso central com dor de cabeça, náusea, tontura e sonolência. A exposição repetida ou prolongada provoca danos aos pulmões, sangue, rins, fígado e timo; e pode provocar dermatite, desengorduramento e inflamação folicular na pele, e conjuntivite crônica nos olhos.

Notas para médico:

Evite contato com o produto ao socorrer a vítima. Se necessário, o tratamento sintomático deve compreender, sobretudo, medidas de suporte como correção de distúrbios hidroeletrólíticos, metabólicos, além de assistência respiratória. Em caso de contato com a pele não friccione o local atingido.

5 - MEDIDAS DE COMBATE A INCÊNDIO

Meios de extinção:

Apropriados: Compatível com espuma para hidrocarbonetos, neblina d'água, pó químico seco e dióxido de carbono (CO₂).

Não recomendados: Água diretamente sobre o líquido em chamas.

Perigos específicos da mistura ou substância:

A combustão do produto químico ou de sua embalagem pode formar gases irritantes e tóxicos como monóxido, dióxido de carbono e sulfeto de hidrogênio. Muito perigoso quando exposto a calor excessivo ou outras fontes de ignição como: faíscas, chamas abertas ou chamas de fósforos e cigarros, operações de solda, lâmpadas-piloto e motores elétricos. Pode acumular carga estática por fluxo ou agitação. Os vapores do



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 5 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

líquido aquecido podem incendiar-se por descarga estática. Os vapores são mais densos que o ar e tendem a se acumular em áreas baixas ou confinadas, como bueiros, porões, etc. Podem deslocar-se por grandes distâncias provocando retrocesso da chama ou novos focos de incêndio tanto em ambientes abertos como confinados. Os contêineres podem explodir se aquecidos.

Medidas de proteção da equipe de combate a incêndio:

Equipamento de proteção respiratória do tipo autônomo (SCBA) com pressão positiva e vestuário protetor completo. Contêineres e tanques envolvidos no incêndio devem ser resfriados com neblina d'água.

6 - MEDIDAS DE CONTROLE PARA DERRAMAMENTO OU VAZAMENTO

Precauções pessoais

Para o pessoal que não faz parte dos serviços de emergência:

Isole o vazamento de fontes de ignição. Impeça fagulhas ou chamas. Não fume. Evacuar a área, num raio de 50 metros. Não toque nos recipientes danificados ou no material derramado sem o uso de vestimentas adequadas. Evite inalação, contato com os olhos e com a pele. Utilize equipamento de proteção individual conforme descrito na seção 8.

Para pessoal de serviço de emergência:

Utilizar EPI completo, com óculos de proteção ou protetor facial contra respingos, luvas de proteção de PVC, calçado de segurança e avental de PVC. O material utilizado deve ser impermeável. Em caso de grandes vazamentos, onde a exposição é grande, recomenda-se o uso de máscara de proteção com filtro contra vapores ou névoas orgânicas.

Precauções ao meio ambiente:

Evite que o produto derramado atinja cursos d'água e rede de esgotos. A água de diluição proveniente do combate ao fogo pode causar poluição.

Métodos e materiais para contenção e limpeza:

Utilize névoa de água ou espuma supressora de vapor para reduzir a dispersão dos vapores. Utilize barreiras naturais ou de contenção de derrame. Colete o produto derramado e coloque em recipientes próprios. Adsorva o produto remanescente, com areia seca, terra, vermiculite, ou qualquer outro material inerte. Coloque o material adsorvido em recipientes apropriados e remova-os para local seguro. Para destinação final, proceder conforme a Seção 13 desta FISPQ.

- Diferenças na ação de grandes e

Não há distinção entre as ações de grandes e pequenos



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 6 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

pequenos vazamentos:

vazamentos para este produto.

7 - MANUSEIO E ARMAZENAMENTO

MEDIDAS TÉCNICAS APROPRIADAS PARA O MANUSEIO

- **Precauções para manuseio seguro:** Manuseie o produto somente em locais bem arejados ou com sistemas de ventilação geral. Evite formação de vapores ou névoas do produto. Não fume. Evite inalação e o contato com a pele, olhos e roupas. Utilize equipamento de proteção individual ao manusear o produto, descritos na seção 8.
- **Medidas de higiene:** Lave as mãos e o rosto cuidadosamente após o manuseio e antes de comer, beber, fumar ou ir ao banheiro. Roupas contaminadas devem ser trocadas e lavadas antes de sua reutilização. Remova a roupa e o equipamento de proteção contaminado antes de entrar nas áreas de alimentação.

Condições para armazenamento seguro, incluindo qualquer incompatibilidade

- Prevenção de incêndio e explosão: Mantenha afastado do calor, faísca, chama aberta e superfícies quentes. — Não fume. Mantenha o recipiente hermeticamente fechado. Aterre o vaso contentor e o receptor do produto durante transferências. Utilize apenas ferramentas anti-faísca. Evite o acúmulo de cargas eletrostáticas. Utilize equipamento elétrico, de ventilação e de iluminação à prova de explosão.
- Condições adequadas: Mantenha o produto em local fresco, seco e bem ventilado, distante de fontes de calor e ignição. O local de armazenamento deve conter bacia de contenção para reter o produto, em caso de vazamento. Mantenha os recipientes bem fechados e devidamente identificados. O local de armazenamento deve ter piso impermeável, isento de materiais combustíveis e com dique de contenção para reter em caso de vazamento. Não é necessária adição de estabilizantes e antioxidantes para garantir a durabilidade do produto. Mantenha afastado de materiais incompatíveis.
- Materiais para embalagens: Semelhante à embalagem original.

8 - CONTROLE DE EXPOSIÇÃO E PROTEÇÃO INDIVIDUAL



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 7 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão: Todas as anteriores

Parâmetros de controle

- Limites de exposição ocupacional: Não estabelecidos.

- Indicadores biológicos: Não estabelecidos.

Medidas de controle de engenharia: Promova ventilação mecânica e sistema de exaustão direta para o meio exterior. Estas medidas auxiliam na redução da exposição ao produto.

Medidas de proteção pessoal

- Proteção dos olhos: Óculos de proteção ou protetor facial contra respingos.

- Proteção da pele e corpo: Luvas de proteção de PVC, calçado de segurança e avental de PVC. O material utilizado deve ser impermeável.

- Proteção respiratória: Recomenda-se o uso de máscara de proteção com filtro contra vapores ou névoas orgânicas.

Perigos térmicos: Não apresenta perigos térmicos.

9 - PROPRIEDADES FÍSICAS E QUÍMICAS

Aspecto (estado físico, forma e cor): Líquido variável e escuro em temperatura ambiente.

Odor e limite de odor: Característico.

pH: Não aplicável.

Ponto de fusão/ponto de congelamento: -30 – 30°C

Ponto de ebulição inicial e faixa de temperatura de ebulição: 32 – 400 °C a 1 atm

Ponto de fulgor: -7 °C (vaso fechado)

Taxa de evaporação: Não disponível.

Inflamabilidade (sólido, gás): Não aplicável.

Limite inferior/superior de inflamabilidade ou explosividade: Superior: 5,9 %
Inferior: 1,1%



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 8 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão: Todas as anteriores

Pressão de vapor:	Não disponível.
Densidade de vapor:	Não disponível.
Densidade relativa:	0,70 – 0,98 a 15 °C
Solubilidade(s):	Insolúvel em água. Solúvel em solventes orgânicos.
Coefficiente de partição – n-octanol/água:	Log Kow: > 2
Temperatura de auto-ignição:	Não disponível.
Temperatura de decomposição:	Não disponível.
Viscosidade:	Não disponível.
Outras informações:	Não aplicável.

10 - ESTABILIDADE E REATIVIDADE

Estabilidade e reatividade:	Produto estável em condições normais de temperatura e pressão.
Possibilidade de reações perigosas:	Não são conhecidas reações perigosas com relação ao produto.
Condições a serem evitadas	Temperaturas elevadas. Fontes de ignição e contato com materiais incompatíveis.
Materiais incompatíveis:	Agentes oxidantes fortes.
Produtos perigosos da decomposição:	Em combustão pode liberar hidrocarbonetos poliaromáticos, na forma de particulados ou vapores. Quando aquecido pode liberar sulfeto de hidrogênio.

11 - INFORMAÇÕES TOXICOLÓGICAS

Toxicidade aguda:	Produto não classificado como tóxico agudo por via oral e dérmica.
	DL ₅₀ (oral, ratos): > 5000 mg/kg
	DL ₅₀ (dérmica, coelhos): > 2000 mg/kg



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 9 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

Corrosão/irritação à pele:	Provoca irritação moderada à pele com vermelhidão e ressecamento.
Lesões oculares graves/ irritação ocular:	Provoca irritação ocular com vermelhidão e lacrimejamento. O contato repetido ou prolongado pode provocar conjuntivite crônica.
Sensibilização respiratória ou à pele:	Pode provocar dermatite, desengorduramento e inflamação folicular após contato repetido ou prolongado com a pele. Não é esperado que o produto provoque sensibilização respiratória.
Mutagenicidade em células germinativas:	Suspeito de provocar defeitos genéticos. Aumento na frequência de aberrações cromossômicas em linfócitos do sangue periférico dos humanos que receberam a exposição ocupacional.
Carcinogenicidade:	Pode provocar câncer. Estudos com camundongos resultaram em tumores na pele, aplicando-se duas frações de destilados de óleos brutos na pele dos animais.
Toxicidade à reprodução:	Suspeita-se que prejudique a fertilidade ou o feto. Estudos de toxicidade no desenvolvimento fetal de ratos evidenciaram morte fetal, redução de peso fetal e retardo na ossificação.
Toxicidade para órgãos-alvo específicos – exposição única:	Pode provocar irritação das vias respiratórias com tosse, dor de garganta e falta de ar; e depressão do sistema nervoso central com dor de cabeça, náusea, tontura e sonolência. Em altas concentrações, pode causar confusão mental e perda da consciência. A ingestão pode provocar distúrbios gastrointestinais com náusea.
Toxicidade para órgãos-alvo específicos – exposição repetida:	Provoca danos aos pulmões, sangue, rins, fígado e timo por exposição repetida ou prolongada. A inalação crônica pode provocar bronquite crônica com tosse, muco e falta de ar.
Perigo por aspiração:	Pode ser fatal se ingerido e penetrar nas vias respiratórias com pneumonia química.



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 10 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

Efeitos ambientais, comportamentos e impactos do produto

Ecotoxicidade:	Tóxico para os organismos aquáticos, com efeitos prolongados. CL ₅₀ (<i>Oncorhynchus mykiss</i> , 96h): 21 mg/L
Persistência e degradabilidade:	Em função da ausência de dados, espera-se que o produto apresente persistência e não seja rapidamente degradado.
Potencial bioacumulativo:	Devido à natureza do produto, espera-se que este apresente potencial bioacumulativo em organismos aquáticos. Log Kow: > 2
Mobilidade no solo:	Não determinado.
Outros efeitos adversos:	A liberação de grandes quantidades de produto pode causar efeitos ambientais indesejáveis, como a diminuição da disponibilidade de oxigênio em ambientes aquáticos devido à formação de camada oleosa na superfície, revestimento e consequente sufocamento de animais.

13 - CONSIDERAÇÕES SOBRE DESTINAÇÃO FINAL

Métodos recomendados para destinação final

- Produto:	Devem ser eliminados como resíduos perigosos de acordo com a legislação local. O tratamento e a disposição devem ser avaliados especificamente para cada produto. Devem ser consultadas legislações federais, estaduais e municipais, dentre estas: Lei nº 12.305, de 02 de agosto de 2010 (Política Nacional de Resíduos Sólidos).
- Restos de produtos:	Manter restos do produto em suas embalagens originais, fechadas e dentro de tambores metálicos, devidamente fechados, de acordo com a legislação aplicável. O descarte deve ser realizado conforme o estabelecido para o produto, recomendando-se as rotas de processamento em cimenteiras e a incineração.
- Embalagem usada:	Nunca reutilize embalagens vazias, pois elas podem conter restos do produto e devem ser mantidas fechadas e encaminhadas para serem destruídas em local apropriado. Neste caso, recomenda-se envio para rotas de recuperação dos



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 11 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

tambores ou incineração.

14 - INFORMAÇÕES SOBRE TRANSPORTE

Regulamentações nacionais e internacionais

Terrestre

Resolução nº 420 de 12 de Fevereiro de 2004 da Agência Nacional de Transportes Terrestres (ANTT), *Aprova as Instruções Complementares ao Regulamento do Transporte Terrestre de Produtos Perigosos e suas modificações.*

Número ONU: 1267

Nome apropriado para embarque: PETRÓLEO CRU

Classe de risco/ subclasse de risco principal: 3

Classe de risco/ subclasse de risco subsidiário: NA

Número de risco: 33

Grupo de embalagem: I

Hidroviário

DPC - Diretoria de Portos e Costas (Transporte em águas brasileiras)

Normas de Autoridade Marítima (NORMAM)

NORMAM 01/DPC: Embarcações Empregadas na Navegação em Mar Aberto

NORMAM 02/DPC: Embarcações Empregadas na Navegação Interior

IMO – “*International Maritime Organization*” (Organização Marítima Internacional)

International Maritime Dangerous Goods Code (IMDG Code).

Número ONU: 1267

Nome apropriado para embarque: PETROLEUM CRUDE OIL

Classe de risco/ subclasse de risco principal: 3



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 12 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão: Todas as anteriores

Classe de risco/ subclasse de risco subsidiário:	NA
Grupo de embalagem:	I
EmS:	F-E, S-E
Perigo ao meio ambiente:	O produto é considerado poluente marinho.
Aéreo	ANAC - Agência Nacional de Aviação Civil – Resolução nº129 de 8 de dezembro de 2009. RBAC Nº175 – (REGULAMENTO BRASILEIRO DA AVIAÇÃO CIVIL) - TRANSPORTE DE ARTIGOS PERIGOSOS EM AERONAVES CIVIS. IS Nº 175-001 – INSTRUÇÃO SUPLEMENTAR - IS ICAO – “<i>International Civil Aviation Organization</i>” (Organização da Aviação Civil Internacional) – Doc 9284-NA/905 IATA - “<i>International Air Transport Association</i>” (Associação Internacional de Transporte Aéreo) <i>Dangerous Goods Regulation (DGR).</i>
Número ONU:	1267
Nome apropriado para embarque:	PETROLEUM CRUDE OIL
Classe de risco/ subclasse de risco principal:	3
Classe de risco/ subclasse de risco subsidiário:	NA
Grupo de embalagem:	I

15 - INFORMAÇÕES SOBRE REGULAMENTAÇÕES

Regulamentações:

Decreto Federal nº 2.657, de 3 de julho de 1998

Norma ABNT-NBR 14725:2012.

Portaria nº 229, de 24 de maio de 2011 – Altera a Norma Regulamentadora nº 26.



Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 13 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

16 - OUTRAS INFORMAÇÕES

Esta FISPQ foi elaborada com base nos atuais conhecimentos sobre o manuseio apropriado do produto e sob as condições normais de uso, de acordo com a aplicação especificada na embalagem. Qualquer outra forma de utilização do produto que envolva a sua combinação com outros materiais, além de formas de uso diversas daquelas indicadas, são de responsabilidade do usuário.

Adverte-se que o manuseio de qualquer substância química requer o conhecimento prévio de seus perigos pelo usuário. No local de trabalho cabe à empresa usuária do produto promover o treinamento de seus empregados e contratados quanto aos possíveis riscos advindos da exposição ao produto químico.

FISPQ elaborada em fevereiro de 2014.

Legendas e abreviaturas:

CAS - *Chemical Abstracts Service*

CL₅₀ – Concentração Letal 50%

DL₅₀ - Dose Letal 50%

NA – Não aplicável.

ONU – Organização das Nações Unidas

Referências bibliográficas:

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Ficha de Informações de Segurança de Produtos Químicos - FISPQ

PRODUTO: PETRÓLEO

Página 14 de 12

Data: 10/06/2014

Nº FISPQ: Pb0113_p

Versão: 0.8P

Anula e substitui versão:

Todas as anteriores

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	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	1 to 11

1. IDENTIFICATION

Product name:	MARINE GASOIL - MGO
Product code:	MGO70S
Relevant uses:	Fuel used in main engines, with large dimensions, in the propulsion systems of large ships.
Supplier:	REFINARIA DE MATARIPE S.A.
Address:	SÃO FRANCISCO DO CONDE, RODOVIA BA 523 KM 4 – CEP 43.900-000 - MATARIPE – BA
Telephone number:	0800 117 2020
Emergency telephone number:	0800 117 2020

2. HAZARDS IDENTIFICATION

Hazard classification according to Annex VI of Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures (CLP), in accordance with GHS (Globally Harmonized System of Classification and Labelling of Chemicals, UN).

2.1 Classification of the substance or mixture

Hazard classification	Category
Flammable liquid	3
Acute toxicity – Inhalation	4
Skin corrosion/irritation	2
Carcinogenicity	2
Target organ systemic toxicity – Repeated exposure	2
Aspiration Toxicity	1
Hazardous to aquatic environment - Chronic	4

2.2 GHS label elements



Pictogram:

Signal word:

DANGER

Hazard statement:

H226 - Flammable liquid and vapour.

H304 - May be fatal if swallowed and enters airways

H315 – Causes skin irritation.

H332 - Harmful if inhaled.

H351 – Suspect to cause cancer.

H373 – May cause damage to organs through prolonged or repeated exposure.

H413 - May cause long-lasting harmful effects to aquatic life.

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	2 to 11

Prevention:
P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surface, sparks, open flames and other ignition sources. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
P264 – Wash thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER/doctor/...
P302 + P352 – If on skin: Wash with plenty of water.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308 + P313 – If exposed or concerned: Get medical advice/attention.
P312 - Call a POISON CENTER or doctor/... if you feel unwell.
P314 – Get medical advice/attention if you feel unwell.
P321 – Specific treatment (see section 4).
P331 - Do NOT induce vomiting.
P332 + P313 – If skin irritation occurs: Get medical advice/attention.
P362 + P364 – Take off contaminated clothing and wash it before reuse.
P370 + P378 - In case of fire: Use dry chemical powder, hydrocarbon resistant foam or carbon dioxide (CO₂) to extinguish.

Storage:
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 – Store locked up.

Disposal:
P501 – Dispose of contents/container in appropriate places for waste / final disposal (appropriate landfill accredited by competent bodies and/or with specialized companies for incineration or other destination in accordance with local/regional/national/international regulations).

Precautionary statement:

2.3 Hazards not otherwise classified

There are no other hazards.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance or mixture: SUBSTANCE.

A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 to C20 and boiling in the range of approximately 163°C to 357°C (325°F to 675°F).

3.1 Substance

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	3 to 11

Technical name: Gasoil.
 CAS number: **68334-30-5**
 Concentration range: $\geq 99.0\%$
 Synonyms: Diesel fuel; Diesel oil.

Impurities that contribute to the danger:	Ingredient name	Concentration	CAS number
	Total sulfur	$\leq 0.5\%$ mass	-
	Hydrogen sulfide	$\leq 2,0$ mg/kg	-

Other ingredients **There are no other ingredients in concentrations above the cut-off values.**

4. FIRST AID MEASURES

Inhalation:	Move affected person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical assistance and present this SDS.
Skin contact:	Brush off loose particles from skin. Wash with plenty water, for at least 15 minutes. Remove contaminated clothing and wash it before reuse. Get medical assistance and present this SDS.
Eye contact:	Flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Remove contact lenses, if present and easy to do. Get medical assistance and present this SDS.
Ingestion:	Wash the mouth with plenty of water. DO NOT INDUCE VOMITING. Whether vomiting occurs spontaneously, lay the patient on her side to prevent her from aspirating the residue. Get medical assistance and present this SDS.
Actions that should be avoided:	Never give anything by mouth to an unconscious person.
Protection of first-aiders:	Avoid contact with the product when helping the victim.

4.1 Most important symptoms and effects, both acute and delayed

May cause skin irritation with redness, pain and dryness. May be harmful if ingested and enters airways with chemical pneumonitis. Repeated exposure may cause thymus, liver and bone marrow damage. Inhalation of vapors may cause irritation of the respiratory tract with coughing, pain. Prolonged exposure to product vapors may cause cancer.

4.2 Notes to physician

Avoid contact with the product when helping the victim. Keep the victim at rest and warm. Do not give anything by mouth to an unconscious person. Symptomatic treatment should understand, above all, supportive measures such as correction of hydroelectrolytic and metabolic disorders, in addition to respiratory assistance.

5. FIRE-FIGHTING MEASURES

Measures that must be taken in the firefighting, caused by the substance, or that occurs around.

5.1 Extinguishing media

Suitable extinguishing media: Use dry chemical powder, hydrocarbon resistant foam and carbon dioxide (CO₂).

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	4 to 11

Unsuitable extinguishing media: Don't use direct water jets over the burning liquid. Water spray only in packaging.

5.2 Specific hazards arising from the chemical

Specials procedures: Evacuate the area. Fight fire from a safe distance. Wear full PPE and self-contained respiratory protection. Use dikes to contain water used in combat. Position yourself with your back to the wind. Use water fog/spray to cool exposed equipment close to the fire.

Dangers from combustion: Heating or burning product can release polyaromatic hydrocarbons, in the form of particulates or vapors, and irritating and toxic gases. Vapors are denser than air and tend to accumulate in low or confined areas such as storm drains, basements, etc. They can travel great distances causing the flame to retreat or new fires in both open and confined environments. Containers can explode if heated. When heated it can release hydrogen sulfide.

5.3 Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 – For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Put on appropriate personal protective equipment (see Section 8). Keep unnecessary personnel Away.

6.1.2 – For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For nonemergency personnel".

Removal of sources of ignition: Interrupt electrical power and turn off sources that generate sparks. Remove from the site all material that could cause the beginning of fire (ex.: spilled diesel oil).

Dust control: Not applicable as it is a liquid.

6.2 Environmental precautions

Special Procedures: Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Do not allow any potentially contaminated water, including rainwater, runoff from firefighting or spills, to enter any waterway, sewer or drain.

6.3 Methods and materials for containment and cleaning up

Cleaning methods: Paved Floor: Use natural or spill containment barriers. Collect spilled product and place in appropriate containers. Adsorb remaining product with dry sand, earth, vermiculite, or any other inert material. Place the adsorbed material in appropriate containers and remove them to a safe place. For final disposal, proceed according to Section 13 of this SDS. Soil: Remove layers of contaminated soil until it reaches uncontaminated soil, collect this material and place in a sealed and properly identified container. Bodies of water: Immediately interrupt the abstraction for human or animal consumption and contact the nearest environmental agency and the company's emergency center, since the measures to be adopted depend on the proportions of the accident, the characteristics of the water body in question and the quantity of the product involved.

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	5 to 11

Difference between small and large leak:	There is no distinction between large and small leak actions for this product.
Prevention of secondary hazards:	Prevent the product from contaminating streams, lakes, water sources, wells, sewers, storm sewers and effluents.
Procedures:	Isolate the area. Use PPE. Remove sources of ignition. Contain spillage. Collect in containers for disposal. Avoid contamination of water courses.
Methods:	Do not use the empty packaging.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

Safe handling guidelines:	Handle the product only in well-ventilated areas or with adequate general/place ventilation systems. Avoid formation of vapors or mists. Avoid exposure to the product. Avoid contact with incompatible materials. Wear protective gloves, protective clothing, eye protection, face protection as indicated in Section 8.
Hygiene measures:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Technical measures appropriate to the workers:	<u>Suitable</u> : Wash contaminated clothing separately before reuse, avoiding contact with other items for personal use. Wash hands and face during breaks and at the end of work hours. <u>Unsuitable</u> : Do not wash contaminated clothing together with other clothing or utensils for personal use.

7.2 Conditions for safe storage, including any incompatibilities

Suitable conditions:	Keep the product in a cool, dry and well-ventilated place, away from sources of heat and ignition. The storage place must contain a containment basin to retain the product in case of leakage. Keep containers tightly closed and properly labeled. The storage place must have an impermeable floor, free of combustible materials and with a containment dike to retain in case of leakage. No need to add stabilizers and antioxidants to ensure product durability.
Conditions to avoid:	Moist locations, heat sources and direct sunlight.
Fire and explosion prevention:	Keep away from heat, sparks, open flame and hot surfaces. Do not smoke. Keep the container tightly closed. Ground the container vessel and product receiver during transfers. Only use non-sparking tools. Avoid the accumulation of electrostatic charges. Use explosion-proof electrical, ventilation and lighting equipment.
Incompatible product and materials / other information:	Do not store together with food, feed, medicines, beverages, intended for human and animal consumption. Adopt good personal hygiene practices. Do not save or consume food in the workplace. Wash hands before eating or smoking.
Safe materials for packaging:	Not specified.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limits:	Ingredient name	Exposure limits	Type	References
	Diesel	100 mg/m ³	TWA	ACGIH

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	6 to 11

Biological indicators: Not established.

8.2 Engineering controls

Appropriate: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. It is recommended to make emergency showers and eyewash stations available in the work area.

8.3 Individual protection measures



Respiratory protection:

Use of a filter respirator for organic vapors is recommended for average exposures above half the TLV-TWA. In cases where exposure exceeds 3 times the TLV-TWA value, use a self-contained, full facepiece, air-supplied respirator (SCBA) operated in positive pressure mode. Follow guidance from the Respiratory Prevention Program (PPR), 4th ed. São Paulo: Fundacentro, 2016.

Hand protection:

For handling use PVC protective gloves.

Eye/face protection:

Safety glasses or face protection (splash shield).

Other skin protection:

Waterproof clothing and protective PVC gloves, closed safety footwear and Sudden Fire (FR) protective clothing.

Thermal hazards:

Not expected under normal use. Not relevant/applicable due to nature of the product.

Special Precautions:

Keep the PPE properly clean and in proper conditions of use, periodically carrying out inspections and possible maintenance and/or replacement of damaged equipment.

Hygiene measures:

Wash contaminated clothing separately, avoiding contact with other personal items.

Collective emergency means:

Emergency shower and eyewash.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state and color):	Clear liquid.
Odor and odor threshold:	Characteristic.
pH:	Not applicable.
Melting point:	Not available.
Boiling point:	Not available.
Flash point:	≥ 60°C.
Evaporation rate:	Not available.
Flammability (solid, gas):	Not applicable.
Explosive (flammable) limits:	
Lower	Not available.
Upper	
Vapor density:	Not available.
Relative density:	0.876 g/cm ³ at 20°C.

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	7 to 11

Vapor pressure:	Not available.
Solubility:	Insoluble in water. Soluble in organic solvents.
Partition coefficient - n-octanol/water:	Log kow: 7.22 (estimated value).
Auto-ignition temperature:	Not available.
Decomposition temperature:	400°C.
Viscosity:	2,0 – 6,0 cSt at 40°C.
Other information:	Not applicable.

10. STABILITY AND REACTIVITY

10.1 Reativity

Under normal conditions of storage and use, this product is non-reactive.

10.2 Chemical stability

Under normal conditions of storage and use, this product is stable. It does not undergo polymerization.

10.3 Possibility of hazardous reactions

There are no known hazardous reactions with the product.

10.4 Conditions to avoid

High temperatures. Ignition sources and contact with incompatible materials.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Heating or burning the product may release light and heavy hydrocarbons and coke. When heated it can release hydrogen sulfide.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	It can cause irritation in the respiratory tract when inhaled.
	LD50 Oral (rat): > 7500 mg/kg.
	LD50 Dermal (rat): > 4100 mg/kg.
	LC50 Inhalation (vapors): 11 mg/L (estimated).
Skin corrosion/irritation:	It causes skin irritation with redness, dryness and pain.
Eye damage/eye irritation:	The product is not expected to cause eye damage or irritation.
Sensibilization:	The product is not expected to cause respiratory or skin sensitization.
Chronic toxicity:	<u>Carcinogenicity</u> : Suspect to causing cancer.
	Possibly carcinogenic to humans (Group 2B – IARC).
	<u>Mutagenicity</u> : The product is not expected to genetic defects.
	<u>Reproductive toxicity</u> : The product is not expected to cause damage fertility or the unborn child.
Specific target organ toxicity:	<u>Single exposure</u> : The product is not expected to cause damage through single exposure.
	<u>Repeated exposure</u> : It can cause thymus, liver and bone marrow damage.
Aspiration hazard:	May be fatal if aspirated with chemical pneumonitis, hemorrhages, and pulmonary edema.

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	8 to 11

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to aquatic organisms: May cause long-lasting harmful effects to aquatic organisms due to its bioaccumulative potential.
 LC50 Fish: Not available.
 LC50 Algae: Not available.
 LC50 Microcrustaceans: Not available.

12.2 Persistence and degradability

Due to the lack of data, it is expected that the product will be persistent and not rapidly degraded.

12.3 Bioaccumulative potential

High bioaccumulative potential in aquatic organisms is expected. Log kow: 7.22 (estimated value).

12.4 Mobility in soil

Not determined.

12.5 Other adverse effects

The release of large amounts of product can cause undesirable environmental effects, such as decreased availability of oxygen in aquatic environments due to the formation of an oily layer on the surface, coating and consequent suffocation of animals.

13. DISPOSAL CONSIDERATIONS

13.1 Disposal methods

Product Waste: Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Used packaging: Empty containers or liners may retain some product residues. Empty containers retain product residue and can be hazardous. Care should be taken when handling emptied containers that have not been cleaned or rinsed out.

14. TRANSPORT INFORMATION

National and international regulations:

	Land	IMDG	IATA
UN number	UN1202	UN1202	UN1202
UN proper shipping name	DIESEL FUEL	DIESEL FUEL	DIESEL FUEL
Transport hazard class(es)	3 	3 	3 
Packing group	III	III	III
Environmental hazards	No	No	No

Land transportation (United Nations, Orange Book):

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	9 to 11

- Risk number: 30
- Special Provision: NA
- Limited quantity:
Vehicle: 1000 kg.
Inner packing: 5 L.

IMDG Classification, according International Maritime Dangerous Goods Code by International Maritime Organization (IMO):

- EmS: F-E, S-E
- Special Provision: NA
- Limited quantity: 5 L.

IATA Classification, according International Aviation Organization – Technical Instructions (ICAO – TI):

- Limited quantity:

Limited quantity max.:	10 L	Packing instruction:	Y344
Passenger Air:	25 L	Packing instruction:	355
Cargo Air:	NA	Packing instruction:	NA
- Special Provision: NA

NOTE - The regulations mentioned above are those in force on the day this SDS is updated. Considering the continuous evolution of regulations for the transport of dangerous goods, it is advisable to ensure their validity with the responsible Competent Bodies.

15. REGULATORY INFORMATION

National and international regulations

ACGIH 2020 - “American Conference of Governmental Industrial Hygienists”; TLVs and BEIs based on the documentation of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.

ECHA – “European Chemicals Agency”; Substance Information; disponível em: <<https://echa.europa.eu/pt/home>>.

IATA - “International Air Transport Association” (Associação Internacional de Transporte Aéreo) Dangerous Goods Regulation (DGR).

IMO – “International Maritime Organization” (Organização Marítima Internacional) International Maritime Dangerous Goods Code (IMDG Code).

International Maritime Dangerous Goods Code, International Maritime Organization (IMO).

NIOSH – “National Institute for Occupational Safety and Health”; Immediately Dangerous to Life and Health (IDLH) Values.

Orange Book - Transport of Dangerous Goods, Vol1 and Vol2, United Nations (UN).

Purple Book, Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations (UN).

Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures (CLP).

Technical Instructions (ICAO – TI), International Aviation Organization.

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	10 to 11

16. OTHER INFORMATION

Version: 1

Authored by: Acelen Product Stewardship

References: Safety data sheets of raw materials, global regulatory body information, scientific literature, and testing data.

Recommended Use - Follow all recommendations for use, storage and disposal indicated by the manufacturer / registrant and described on the packaging, product package insert and mentioned in section 1 of this SDS.

Notice to reader - This product's safety information is provided to assist our customers in assessing compliance with safety/health/ environmental regulations. The information contained herein is based on data available to us and is correct to the best of our knowledge, information and belief at the date of its publication. However, no warranty of merchantability, fitness for any use, or any other warranty is expressed or implied regarding the accuracy of this data, the results to be obtained from the use thereof, or the hazards connected with the use of the product. Since the use of this product is within the exclusive control of the user, it is the user's obligation to determine the conditions for safe use of the product. Such conditions should comply with all regulations concerning the product. The company referenced in this Safety Data Sheet assumes no liability for any injury or damage, direct or consequential, resulting from the use of this product unless such injury or damage is attributable to the gross negligence of such company.

Key to abbreviations:

ABNT - Agência Brasileira de Normas Técnicas;
ACGIH - American Conference of Governmental Industrial Hygienists;
ATE - Acute Toxicity Estimate;
BCF - Bioconcentration Factor;
BEI - *Biological Exposure Indices*;
CAS - Chemical Abstracts Service;
EC50 - Effective concentration;
EPA - Environmental Protection Agency;
GHS - Globally Harmonized System of Classification and Labelling of Chemicals;
IATA - International Air Transport Association;
IBC - Intermediate Bulk Container;
IDLH - *Immediately Dangerous To Life or Health*;
IMDG - International Maritime Dangerous Goods;
LC50 - Lethal concentration 50%;
LD50 - Lethal dose 50%;
LEL - Lower explosive limit;
LogPow - logarithm of the octanol/water partition coefficient;
MARPOL - International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution);
NA - Not applicable;
NBR - Norma Brasileira;
ND - Not available;
NFPA - National Fire Protection Association;
NIOSH - *National Institute for Occupational Safety and Health*;
OSHA - Occupational Safety and Health Administration;
PEL - Permissible Exposure Limits;

	SAFETY DATA SHEET MARINE GASOIL - MGO	SDS:	MGO70S
		Version:	1
		Date of revision:	18/11/2022
		Page:	11 to 11

PPE - Personal protective equipment;
REL - Recommended Exposure Limits;
SCBA – Self-contained breathing apparatus;
SGG - Segregation Group;
TLV - Threshold limit value;
TWA - Time Weighted Average;
UEL – Upper explosive limit;
UN - United Nations;
VOC - Volatile Organic Compound.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	Fuel oil, residual
Product Description	VB1002-ULTRA LOW SULPHUR FUEL OIL – 0.10 % SULPHUR
Trade Name	ULTRA LOW SULPHUR FUEL OIL
Product code	ULSFO
CAS No.	68476-33-5
EC No.	270-675-6

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

Identified Use(s)

No.	Exposure Scenario	Page:
1	Distribution of Fuel oil, residual	11
2	Formulation and (re)packing of Fuel oil, residual	15
3	Use of Fuel oil, residual as a Fuel (Industrial)	19
4	Use of Fuel oil, residual as a Fuel (Professional)	22

Uses Advised Against

Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification

VitolBunkers (S) Pte Ltd
460 Alexandra Road
#15-02 MTower
119963 Singapore

Telephone

+65 6376 5066

Fax

+65 6276 3736

E-Mail (competent person)

xreach@vitol.com

1.4 Emergency telephone number

Emergency Phone No.

+44 (0) 1235 239 670, 24/7

Languages spoken

All official European languages.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP)

Asp. Tox. 1; H304
Acute Tox. 4; H332
Carc. 1B; H350
Repr. 2; H361d
STOT RE 2; H373 (Thymus, Liver, blood effects)
Aquatic Acute 1; H400
Aquatic Chronic 1; H410

2.2 Label elements

Product Description

According to Regulation (EC) No. 1272/2008 (CLP)
VB1002-ULTRA LOW SULPHUR FUEL OIL - Fuel oil, residual

Hazard Pictogram(s)



Signal Word(s)

Danger

Hazard Statement(s)

H304: May be fatal if swallowed and enters airways.
H332: Harmful if inhaled.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

	H350: May cause cancer. H361d: Suspected of damaging the unborn child. H373: May cause damage to organs through prolonged or repeated exposure: Thymus, Liver, blood effects H410: Very toxic to aquatic life with long lasting effects.
Precautionary Statement(s)	P201: Obtain special instructions before use. P260: Do not breathe dust/fume/gas/mist/vapours/spray. P281: Use personal protective equipment as required. P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P331: Do NOT induce vomiting. P273: Avoid release to the environment.
Supplemental information	EUH066: Repeated exposure may cause skin dryness or cracking.
2.3 Other hazards	Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. Remove contaminated clothing and wash clothing before reuse. Vapour may create explosive atmosphere. The vapour is heavier than air, beware of pits and confined spaces.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

SUBSTANCE	CAS No.	EC No.	REACH Registration No.	%W/W
Fuel oil, residual	68476-33-5	270-675-6	01-2119474894-22-xxxx	100

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

H2S Warning:

Inhalation

Skin Contact

Eye Contact

Ingestion

The vapour is heavier than air; beware of pits and confined spaces. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Avoid all contact. Do not ingest. If swallowed then seek immediate medical assistance.

Hydrogen sulphide (H₂S) can accumulate in the headspace of storage tanks and reach potentially hazardous concentrations.

If there is any suspicion of inhalation: A self contained breathing apparatus should be worn. Remove to fresh air immediately.

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If symptoms persist, obtain medical attention.

IF ON SKIN (or hair): Remove contaminated clothing immediately and drench affected skin with plenty of water, then wash with soap and water. If irritation (redness, rash, blistering) develops, get medical attention.

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.

IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs. If unconscious, place in recovery position and get medical attention immediately. Do not give anything by mouth to an unconscious person. Get medical attention immediately. Do not wait for symptoms to appear.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

4.2	Most important symptoms and effects, both acute and delayed	Inhalation: Vapour may be irritant to the respiratory tract. Skin Contact: Repeated and/or prolonged skin contact may cause irritation. Eye Contact: May cause eye irritation. Ingestion: Aspiration hazard. Aspiration into the lungs may cause chemical pneumonitis, which can be fatal.
4.3	Indication of any immediate medical attention and special treatment needed	If breathing is laboured, oxygen should be administered by qualified personnel. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). IF INHALED: If unconscious, place in recovery position and get medical attention immediately. Administer oxygen if available and artificial respiration if necessary. IF SWALLOWED: Do not induce vomiting because of risk of aspiration into the lungs. If aspiration is suspected obtain immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration into the lungs.
	Notes to a physician:	

SECTION 5: FIREFIGHTING MEASURES

5.1	Extinguishing media Suitable Extinguishing media Unsuitable extinguishing media	Foam, Carbon dioxide, Water fog or dry powder. Do not use water jet. Direct water jet may spread the fire.
5.2	Special hazards arising from the substance or mixture	Not flammable but will support combustion. The vapour is heavier than air, beware of pits and confined spaces. Will float and can be reignited on surface water. Decomposes in a fire giving off toxic fumes: A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. If sulphur compounds are present in appreciable amounts, combustion products may include also H ₂ S and SO _x (sulfur oxides) or sulfuric acid
5.3	Advice for fire-fighters	Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid release to the environment. Dike fire control water for later disposal.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	Personal precautions, protective equipment and emergency procedures	Caution - spillages may be slippery. Ensure operatives are trained to minimise exposures. Ensure suitable personal protection during removal of spillages. Eliminate sources of ignition. Shut off leaks if without risk. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid all contact with substance. Ensure adequate ventilation. Do not breathe vapour. Do not ingest. If swallowed then seek immediate medical assistance. Do not use sparking tools.
	H ₂ S Warning:	Product may release Hydrogen Sulphide. Exposure controls - These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H ₂ S alarms, Personal H ₂ S alarms, Personal escape sets, H ₂ S awareness training. Please see section 8 for appropriate personal protection equipment
	Small spillages:	Wear flame-resistant antistatic protective clothing.
	Large spillages:	Evacuate the area and keep personnel upwind. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. Avoid all contact. Wear chemical protection suit and breathing apparatus. See Also Section: 8.
6.2	Environmental precautions	Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body. If necessary: Dike area to contain the spill and prevent releases to sewers, drains, or other waterways.
6.3	Methods and material for containment and cleaning up	Provided it is safe to do so, isolate the source of the leak. The vapour is heavier than air, beware of pits and confined spaces. Ensure that the equipment is adequately grounded. Allow small spillages to evaporate provided there is adequate ventilation.
	Spillages onto land:	In case of soil contamination, remove contaminated soil and treat in accordance with local regulations. Adsorb spillages onto sand, earth or any suitable

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Spillages on water or at sea:	adsorbent material. Transfer to a lidded container for disposal or recovery. Dispose of this material and its container as hazardous waste. Small spillages: Allow small spillages to evaporate provided there is adequate ventilation. Wear flame-resistant antistatic protective clothing. Large spillages: Cover spillage with foam to reduce evaporation. Do not use water jet. Collect as much as possible in clean container for reuse or disposal. Small spillages: Contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents. Large spillages: Open waters should be contained with floating barriers or other mechanical means and recovered, only if this is strictly necessary and if fire/explosion risks can be adequately prevented. Otherwise control the spreading of the spillage, and let the substance evaporate naturally. See Section: 8, 13
6.4 Reference to other sections	

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling	Obtain special instructions before use. Keep away from sources of ignition - No smoking. Use only outdoors or in a well-ventilated area. Prevent vapour build up by providing adequate ventilation during and after use. Take action to prevent static discharges. Use non-sparking tools. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used. The vapour is heavier than air; beware of pits and confined spaces. Avoid all contact with substance. Do not ingest. If swallowed then seek immediate medical assistance. Do not breathe vapour. See Section: 8. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned. H2S Warning: Product may release Hydrogen Sulphide: A specific assessment of inhalation risks from the presence of hydrogen sulphide in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases should be made to help determine controls appropriate to local circumstances. These controls may include: Segregation of areas, Access only to authorised persons, Permit to work systems, Confined space working procedures, Area H2S alarms, Personal H2S alarms, Personal escape sets, H2S awareness training.
7.2 Conditions for safe storage, including any incompatibilities	Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep only in original packaging. Keep containers properly sealed when not in use. Protect from sunlight. Containers of this material may be hazardous when empty since they retain product residue. Empty container may contain product residue which may result in flammable or explosive vapours inside the container. Storage temperature: Stable at ambient temperatures. Storage measures: Suitable containers: Stainless steel, Mild steel Incompatible materials: Unsuitable containers: Synthetic materials
7.3 Specific end use(s)	Keep away from oxidising agents. See Section: 1.2 and/or Exposure Scenario.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters	
8.1.1 Occupational Exposure Limits	No Occupational Exposure Limit assigned. Users are advised to consider national Occupational Exposure Limits or other equivalent values.
8.1.2 Biological limit value	Not established.
8.1.3 PNECs and DNELs	PNEC: Fuel Oil, Residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Fuel Oil, Residual Derived No Effect Level	Oral	Inhalation	Dermal
Worker - Long Term - Systemic effects	0.015 mg/kg bw/day	0.18 mg/m ³	0.065 mg/kg bw/day
Worker - Short term - Systemic effects	-	4700 mg/m ³	-

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the working place.

8.2.2 Individual protection measures, such as personal protective equipment (PPE)

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate. Keep good industrial hygiene. Always wash hands before smoking, eating and drinking. Do not eat, drink or smoke at the work place.

Refer to annexes for exposure scenarios detailing use specific exposure controls

Eye/ face protection



Use eye protection according to EN 166, designed to protect against liquid splashes.

Skin protection



Hand protection: Wear impervious gloves (EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.
Recommended: Nitrile rubber.

Body protection: Wear anti-static clothing and shoes.
small scale: Wear suitable coveralls to prevent exposure to the skin.
large scale: Chemical protection suit.

Respiratory protection



When the product is heated /In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (EN143) is recommended. Filter type A2

Closed system(s): Not normally required.

Thermal hazards

Not applicable.

8.2.3 Environmental Exposure Controls

Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Liquid, Viscous, May be coloured.
Odour	Fuel oil-like
Odour threshold	Not established.
pH	Not established.
Melting point/freezing point	< 30 °C
Initial boiling point and boiling range	Typical value 140 - 400 °C
Flash point	> 60 °C
Evaporation rate	Not established .
Flammability (solid, gas)	Not applicable - Liquid
Upper/lower flammability or explosive limits	Not established.
Vapour pressure	<= 0,4 kPa (38,0 °C)

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Vapour density	Not established
Relative density	0.850 - 0.9920 g/cm³ @ 15 °C
Solubility(ies)	Water: 0.4 mg/l @ 22 °C Slightly soluble.
Partition coefficient: n-octanol/water	log Pow: 2 - 20
Auto-ignition temperature	> 225 °C
Decomposition Temperature	Not established.
Viscosity	10 – 390 mm²/s @ 50 °C
Explosive properties	Not explosive. (Vapour may create explosive atmosphere.)
Oxidising properties	Not oxidising.

9.2 Other information None known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Stability and reactivity	Stable under normal conditions. Reacts with - Strong oxidising agents
10.2 Chemical stability	Stable under normal conditions. Hazardous polymerisation will not occur. Product may release Hydrogen Sulphide.
10.3 Possibility of hazardous reactions	Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. Product may release Hydrogen Sulphide.
10.4 Conditions to avoid	Elevated temperature: > 50 °C Keep away from heat, sources of ignition and direct sunlight.
10.5 Incompatible materials	Keep away from oxidising agents. Strong Acids and Alkalis.
10.6 Hazardous decomposition product(s)	A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. Decomposes in a fire giving off toxic fumes: COx, H2S, SOx,

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	All test data taken from existing ECHA registrations for the substances mentioned.
Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. LD50 (oral, rat) mg/kg: >2000 (OECD 401)
Acute toxicity - Inhalation	Acute Tox. 4; Harmful if inhaled.
Acute toxicity - Skin Contact	LC50 (inhalation, rat) mg/l/4h: 4.1 (EPA OTS 798.1150)
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met. LD50 (skin, rabbit) mg/kg: >2000 (OECD 434)
Serious eye damage/irritation	Based upon the available data, the classification criteria are not met. Not irritating to skin. (rabbit) (OECD 404)
Respiratory or skin sensitization	EUH066: Repeated exposure may cause skin dryness or cracking. (rat) (OECD 410)
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met. Not irritating to eyes. (rabbit) (EU Method B.5)
Carcinogenicity	Based upon the available data, the classification criteria are not met. Sensitisation (guinea pig) - Negative (OECD 406)
Reproductive toxicity	Based upon the available data, the classification criteria are not met. ECHA Registration Endpoint summary: Not classified. Studies showed no consistent evidence of mutagenic activity. Carc. 1B; May cause cancer.
STOT - single exposure	ECHA Registration Endpoint summary: Positive (mouse)
STOT - repeated exposure	Repr. 2; H361d: Suspected of damaging the unborn child.
Aspiration hazard	ECHA Registration Endpoint summary: Reproductive toxicity: Negative Developmental toxicity: Positive Based upon the available data, the classification criteria are not met. Weight of evidence approach STOT RE 2; May cause damage to organs through prolonged or repeated exposure. Oral: No data Inhalation: No data Dermal: NOAEL 1.06 mg/kg bw/day (rat) (OECD 410) Asp. Tox. 1; May be fatal if swallowed and enters airways.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Viscosity: 7 – 20.5 mm²/s @ 40 °C (<60 mm²/s @ 100 °C)

11.2 Other information

None.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Aquatic Acute 1; Very toxic to aquatic life. Aquatic Chronic 1; Very toxic to aquatic life with long lasting effects. EL50 48hr (Daphnia magna) 0.22 mg/l (OECD 202) The aquatic toxicity was estimated using the PETROTOX computer model. Estimated: 0.1 mg/l (Fish)
12.2 Persistence and degradability	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.
12.3 Bioaccumulative potential	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.
12.4 Mobility in soil	Substance is complex UVCB. Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.
12.5 Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6 Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue. Containers must not be punctured or destroyed by burning, even when empty. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company. Waste code: Fuel Oil (13 07 01)
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SECTION 14: TRANSPORT INFORMATION

14.1 UN number	ADR/RID	IMDG/ADN
14.2 Proper Shipping Name	UN 3082	UN 3082
14.3 Transport hazard class(es)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, FUEL OIL, RESIDUAL	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, FUEL OIL, RESIDUAL
14.4 Packing group	9	9 (N1, CMR, F)
14.5 Environmental hazards	III	III
14.6 Special precautions for user	MILIEUGEVAARLIJK / ENVIRONMENTALLY HAZARDOUS/ UMWELTGEFAHREND /DANGEREUX POUR L'ENVIRONNEMENT	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	See Section: 2	
14.8 Additional Information	This product is being carried under the scope of MARPOL Annex 1. Special Precautions: Refer to Chapter 7 'Handling and Storage' for special precautions which a user needs to be aware of, or needs to comply with, in connection with transport. ADR HIN: 90 Tunnel Restriction Code: 3 E Limited Quantity: 5L	EmS: F-A, S-F Limited Quantity: 5L

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 EU regulations	Authorisations and/or Restrictions On Use
Annex XVII (Restrictions)	In accordance with REACH Annex XVII entry 30 (c) this substance is exempt from Entry 28 and 29 of REACH Annex XVII as it is to be sold as a fuel in a closed system.
Seveso	Upper Tier: 25000 tonnes

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

15.1.2 National regulations

Germany

15.2 Chemical Safety Assessment

Lower Tier: 2500 tonnes

Wassergefährdungsklasse (Germany). WGK number: 3

A REACH chemical safety assessment (CSA) has been carried out. Refer to annexes for exposure scenarios detailing use specific exposure controls.

SECTION 16: OTHER INFORMATION

Sections indicated with the following have been revised

Header and Section 9.1

Updated version and date. Please review SDS with care.

References:

Existing ECHA registration(s) for Fuel Oil, Residual (CAS No. 68476-33-5) and Chemical Safety Report.

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
OECD	Organisation for Economic Cooperation and Development

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

Disclaimers

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Annex to the extended Safety Data Sheet (eSDS)

See below -

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Fuel oil, residual

CAS No.
EINECS No.

68476-33-5
270-675-6

Summary of Parameters

Physical parameters			
Vapour pressure (Pa)		Value used for exposure assessment = 2.0E+02	
Partition coefficient (log K _{OW})		1.99 – 18.02	
Aqueous solubility (mg/l)		2.7E-12 – 2.0E+03 Value used for environmental exposure assessment = 7.3E+00	
Molecular weight		Not applicable	
Biodegradability		Standard tests for this endpoint are intended for single substances and are not appropriate for this complex substance.	
Human Health (DNEL)			
Workers	Short term	Inhalation (mg/m³)	4700
		Dermal (mg/kg bw/day)	Not defined
	Long Term	Inhalation (mg/m³)	0.18
		Dermal (mg/kg bw/day)	0.065
Consumer		Inhalation (mg/m³)	Not defined
		Dermal (mg/kg bw/day)	Not defined
		Oral (mg/kg bw/day)	0.015
Environmental Parameters (PNECs)			
Fuel oil, residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.			

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Contents		
Number	Title	Page:
Exposure scenario 1	Distribution of Fuel oil, residual	11
Exposure scenario 2	Formulation and (re)packing of Fuel oil, residual	15
Exposure scenario 3	Use of Fuel oil, residual as a Fuel (Industrial)	19
Exposure scenario 4	Use of Fuel oil, residual as a Fuel (Professional)	22

Contributing Scenarios	
Workers	
PROC1 Use in closed process, no likelihood of exposure	
PROC2 Use in closed, continuous process with occasional controlled exposure	
(Storage) Bulk product storage.	
(Sampling) Product sampling.	
(Fuel filtering) Operation of solids filtering equipment.	
PROC3 Use in closed batch process (synthesis or formulation)	
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
(Maintenance) Equipment cleaning and maintenance.	
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
(Marine) Marine vessel or barge loading.	
(Road/Rail) Road tanker/rail car loading.	
(Drum) Drum or batch transfers.	
(Bulk) Bulk closed loading and unloading.	
(Refuelling) Refuelling.	
PROC15 Use as laboratory reagent.	
PROC16 Using material as fuel sources, limited exposure to unburned product to be expected	
Environment	
ERC2 Formulation of preparations	
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles	
ERC5 Industrial use resulting in inclusion into or onto a matrix	
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)	
ERC6b Industrial use of reactive processing aids	
ERC6c Industrial use of monomers for manufacture of thermo-plastics	
ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers	
ERC7 Industrial use of substances in closed systems	
ERC9a Wide dispersive indoor use of substances in closed systems	
ERC9b Wide dispersive outdoor use of substances in closed systems	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Exposure Scenario 1 – Distribution of Fuel oil, residual

1.0 Contributing scenarios	
Sector of Use [SU]	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
Process Category [PROC]	PROC1 PROC2 PROC2 (Storage) PROC2 (Sampling) PROC3 PROC8a (Maintenance) PROC8b (Marine) PROC8b (Road/Rail) PROC15
Chemical Product Category [PC]	Not applicable
Article Categories [AC]	Not applicable
Environmental Release Categories [ERC]	ERC4 ERC5 ERC6a ERC6b ERC6c ERC6d ERC7
Specific Environmental Release Categories [SPERC]	ESVOC SpERC 1.1b.v1

2.0 Operational conditions and risk management measures		
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	<0.5 kPa @ STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).	
Human factors not influenced by risk management		
Potential exposure area	Not defined	
Frequency and duration of use		
Exposure duration per day	PROC1, PROC8a (Maintenance), PROC15	Covers daily exposures up to 8 hours (unless stated differently).
	PROC2 (Storage), PROC3, PROC8b (Marine)	Covers exposure up to 1 - 4 hour(s)
	PROC8b (Road/Rail)	Covers exposure up to 15 min - 1 hour(s)
	PROC2, PROC2 (Sampling)	Covers exposure up to 15 min
Emission days (days/year):	300	
Other operational conditions affecting worker exposure		
Area of use	PROC2 (Sampling)	Outdoor
	All other PROC's	Not defined (default = Indoor)
Characteristics of the surroundings	Not defined	
General measures applicable to all activities		
Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).		
General measures (carcinogens)		
Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.		
Technical conditions of use		
PROC1, PROC2, PROC2 (Storage), PROC3	Handle substance within a closed system.	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

PROC8b (Road/Rail)	Ensure material transfers are under containment or extract ventilation (Efficiency of at least 80%)	
PROC15	Handle in a fume cupboard or under extract ventilation. (Efficiency of at least 90 %).	
Organisational measures		
PROC2; PROC3	Sample via a closed loop or other system to avoid exposure.	
PROC8b (Marine)	Transfer via enclosed lines. Clear transfer lines prior to de-coupling.	
PROC8a (Maintenance)	Drain down and flush system prior to equipment break-in or maintenance.	
PROC8a (Maintenance), PROC8b (Marine)	Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
PROC8b (Road/Rail)	Ensure material transfers are under containment or extract ventilation	
Risk management measures related to human health		
Respiratory protection	No special measures are required.	
Hand and/or Skin protection	PROC1, PROC2, PROC2 (Storage), PROC2 (Sampling), PROC3, PROC8b (Marine), PROC8b (Road/Rail)	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(Efficiency of at least 90 %).
	PROC15	Wear suitable gloves tested to EN374. (Efficiency of at least 80 %).
	PROC8a (Maintenance)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Efficiency of at least 75%)
Eye Protection	No special measures are required.	
2.2 Control of environmental exposure		
Amounts used		
Fraction of EU tonnage used in region:	0.1	
Regional use tonnage (tons/year):	9.3E+06	
Fraction of Regional tonnage used locally (tons/year):	2.0E-03	
Annual site tonnage (tons/year):	1.9E+04	
Maximum daily site tonnage (kg/day):	6.2E+04	
Environment factors not influenced by risk management		
Flow rate of receiving surface water (m³/d):	Not defined (default = 18,000)	
Local freshwater dilution factor:	10	
Local marine water dilution factor:	100	
Operational conditions		
Emission days (days/year):	300	
Release fraction to air from process (initial release prior to RMM):	1.0E-04	
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-06	
Release fraction to soil from process (initial release prior to RMM):	1.0E-05	
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used.		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required.		
Treat air emission to provide a typical removal efficiency of (%):	90	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	0	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0	
Treat soil emission to provide a typical removal efficiency of (%):	Not defined	
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.		
Conditions and measures related to municipal sewage treatment plant		
Size of municipal sewage system/treatment plant (m³/d):	2.0E+03	
Degradation effectiveness (%):	94.2	
Conditions and measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or national regulations.		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations.		
Substance release quantities after risk management measures		
Release to waste water from process (mg/l):	Not defined	
Maximum allowable site tonnage (MSafe) based on release	8.0E+04	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

following total wastewater treatment removal (kg/d):

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC2 (Sampling), PROC15)
The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC3, PROC8a (Maintenance), PROC8b (Marine), PROC8b (Road/Rail)).

Process Category [PROC]	Inhalation		Dermal		Combined Risk characterisation ratio (RCR)
	Inhalation exposure (mg/m³)	Risk characterisation ratio (RCR)	Dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	
PROC1	0.01	0.04	0.03	0.57	0.61
PROC2	0.04	0.19	0.03	0.57	0.76
PROC2 (Storage)	0.04	0.21	0.03	0.57	0.78
PROC2 (Sampling)	0.04	0.19	0.03	0.57	0.76
PROC3	0.04	0.21	0.03	0.57	0.78
PROC8a (Maintenance)	0.00	0.01	0.05	0.83	0.85
PROC8b (Marine)	0.06	0.35	0.03	0.57	0.92
PROC8b (Road/Rail)	0.03	0.19	0.03	0.57	0.76
PROC15	0.05	0.28	0.01	0.10	0.38

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Fuel oil, residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	Freshwater	Marine water	Soil	Freshwater sediment	Marine sediment
Predicted Environmental Exposure (PEC)	1.9E-03 mg/l	1.9E-04 mg/l	1.9E-05 mg/l	6.2E-02 mg/kg ww	1.4E+00 mg/kg ww	3.7E-02 mg/kg ww
Risk characterisation ratio (RCR)	2.0E-03	7.6E-03	7.6E-04	3.3E-05	1.3E-02	9.9E-04

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	2.0E+01	7.7E-01
Inhalation	1.6E-01	3.2E-03

4. Evaluation guidance to downstream user

For scaling see	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	
Exposure assessment instrument/tool/method	Worker	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC2 (Sampling), PROC15) The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC3, PROC8a

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

		(Maintenance), PROC8b (Marine), PROC8b (Road/Rail)).
	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Exposure Scenario 2 – Formulation and (re)packing of Fuel oil, residual

1.0 Contributing scenarios		
Sector of Use [SU]	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)	
Process Category [PROC]	PROC1 PROC2 PROC2 (Storage) PROC2 (Sampling) PROC3 PROC8a (Maintenance) PROC8b (Marine) PROC8b (Road/Rail) PROC8b (Drum) PROC15	
Chemical Product Category [PC]	Not applicable	
Article Categories [AC]	Not applicable	
Environmental Release Categories [ERC]	ERC2	
Specific Environmental Release Categories [SPERC]	ESVOC SpERC 2.2.v1	

2.0 Operational conditions and risk management measures		
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	<0.5 kPa @ STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).	
Human factors not influenced by risk management		
Potential exposure area	Not defined	
Frequency and duration of use		
Exposure duration per day	PROC1, PROC8a (Maintenance), PROC15	Covers daily exposures up to 8 hours (unless stated differently).
	PROC2 (Storage), PROC3, PROC8b (Marine)	Covers exposure up to 1 - 4 hour(s)
	PROC8b (Road/Rail), PROC8b (Drum)	Covers exposure up to 15 min - 1 hour(s)
	PROC2, PROC2 (Sampling)	Covers exposure up to 15 min
Emission days (days/year):	300	
Other operational conditions affecting worker exposure		
Area of use	All contributing scenarios	Not defined (default = Indoor)
Characteristics of the surroundings	Not defined	
General measures applicable to all activities		
Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).		
General measures (carcinogens)		
Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.		
Technical conditions of use		
PROC1, PROC2, PROC3	Handle substance within a closed system.	
PROC8b (Drum)	Ensure material transfers are under containment or extract ventilation. (Efficiency of at least 97%).	
PROC15	Handle in a fume cupboard or under extract ventilation. (Efficiency of at least 90 %).	
Organisational measures		
PROC2, PROC2 (Sampling)	Minimise the volume and frequency of sampling. Ensure dedicated sample points are provided.	
PROC8b (Marine)	Transfer via enclosed lines. Clear transfer lines prior to de-coupling.	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

PROC8a (Maintenance)	Drain down and flush system prior to equipment break-in or maintenance.	
PROC8a (Maintenance), PROC8b (Marine)	Retain drain downs in sealed storage pending disposal or for subsequent recycle.	
PROC8b (Road/Rail), PROC8b (Drum)	Ensure material transfers are under containment or extract ventilation	
Risk management measures related to human health		
Respiratory protection	No special measures are required.	
Hand and/or Skin protection	PROC1, PROC2, PROC2 (Storage), PROC2 (Sampling), PROC3, PROC8b (Marine), PROC8b (Road/Rail), PROC8b (Drum)	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.(Efficiency of at least 90 %).
	PROC8a (Maintenance)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (Efficiency of at least 75%)
	PROC15	Wear suitable gloves tested to EN374. (Efficiency of at least 80 %).
Eye Protection	No special measures are required.	
2.2 Control of environmental exposure		
Amounts used		
Fraction of EU tonnage used in region:	0.1	
Regional use tonnage (tons/year):	7.5E+06	
Fraction of Regional tonnage used locally (tons/year):	4.0E-03	
Annual site tonnage (tons/year):	3.0E+04	
Maximum daily site tonnage (kg/day):	1.0E+05	
Environment factors not influenced by risk management		
Flow rate of receiving surface water (m³/d):	Not defined (default = 18,000)	
Local freshwater dilution factor:	10	
Local marine water dilution factor:	100	
Operational conditions		
Emission days (days/year):	300	
Release fraction to air from process (after typical onsite RMMS consistent with EU Solvent Emissions Directive requirements):	1.0E-03	
Release fraction to wastewater from process (initial release prior to RMM):	2.0E-05	
Release fraction to soil from process (initial release prior to RMM):	1.0E-04	
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used.		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required.		
Treat air emission to provide a typical removal efficiency of (%):	0	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	81.3	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0	
Treat soil emission to provide a typical removal efficiency of (%):	Not defined	
Common practices vary across sites thus conservative process release estimates used.		
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.		
Conditions and measures related to municipal sewage treatment plant		
Size of municipal sewage system/treatment plant (m³/d):	2.0E+03	
Degradation effectiveness (%):	94.2	
Conditions and measures related to external treatment of waste for disposal		
External treatment and disposal of waste should comply with applicable local and/or national regulations.		
Conditions and measures related to external recovery of waste		
External recovery and recycling of waste should comply with applicable local and/or national regulations.		
Substance release quantities after risk management measures		
Release to waste water from process (mg/l):	Not defined	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):	1.1E+05	

3. Exposure estimation and reference to its source

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

3.1 Human exposure prediction

Exposure assessment (method/calculation model)	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC2 (Sampling), PROC8b (Drum), PROC15) The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC3, PROC8a (Maintenance), PROC8b (Marine), PROC8b (Road/Rail)).
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Process Category [PROC]	Inhalation		Dermal		Combined
	Inhalation exposure (mg/m³)	Risk characterisation ratio (RCR)	Dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PROC1	0.01	0.04	0.03	0.57	0.61
PROC2	0.04	0.19	0.03	0.57	0.76
PROC2 (Storage)	0.04	0.21	0.03	0.57	0.78
PROC2 (Sampling)	0.04	0.19	0.03	0.57	0.76
PROC3	0.04	0.21	0.03	0.57	0.78
PROC8a (Maintenance)	0.00	0.01	0.05	0.83	0.85
PROC8b (Marine)	0.06	0.36	0.03	0.57	0.92
PROC8b (Road/Rail)	0.03	0.20	0.03	0.57	0.76
PROC8b (Drum)	0.02	0.12	0.03	0.57	0.68
PROC15	0.05	0.28	0.01	0.10	0.38

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.
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Fuel oil, residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	Freshwater	Marine water	Soil	Freshwater sediment	Marine sediment
Predicted Environmental Exposure (PEC)	6.1E-02 mg/l	6.1E-03 mg/l	6.1E-04 mg/l	6.3E-02 mg/kg ww	1.5E+00 mg/kg ww	5.5E-02 mg/kg ww
Risk characterisation ratio (RCR)	6.4E-02	2.4E-01	2.4E-02	5.3E-04	3.1E-01	3.1E-02

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	2.1E+01	8.1E-01
Inhalation	6.6E+00	1.3E-01

4. Evaluation guidance to downstream user

For scaling see	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).
Exposure assessment instrument/tool/method	Worker The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC2 (Sampling), PROC8b (Drum), PROC15) The Advanced REACH Tool (ART) has been used to estimate workplace

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

		exposures unless otherwise indicated. (PROC2 (Storage), PROC3, PROC8a (Maintenance), PROC8b (Marine), PROC8b (Road/Rail)).
	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Exposure Scenario 3 – Use of Fuel oil, residual as a Fuel (Industrial)

1.0 Contributing scenarios		
Sector of Use [SU]	SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites	
Process Category [PROC]	PROC1 PROC2 PROC2 (Fuel filtering) PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (Bulk) PROC8b (Drum) PROC16	
Chemical Product Category [PC]	Not applicable	
Article Categories [AC]	Not applicable	
Environmental Release Categories [ERC]	ERC7	
Specific Environmental Release Categories [SPERC]	ESVOC SpERC 7.12a.v1	

2.0 Operational conditions and risk management measures		
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	<0.5 kPa @ STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).	
Human factors not influenced by risk management		
Potential exposure area	Not defined	
Frequency and duration of use		
Exposure duration per day	PROC1, PROC8a (Maintenance), PROC8b (Bulk), PROC16	Covers daily exposures up to 8 hours (unless stated differently).
	PROC2 (Fuel filtering), PROC2 (Storage), PROC3	Covers exposure up to 1 - 4 hour(s)
	PROC2, PROC8b (Drum)	Covers exposure up to 15 min - 1 hour(s)
Emission days (days/year):	300	
Other operational conditions affecting worker exposure		
Area of use	PROC8b (Bulk)	Outdoor
	All other PROC's	Not defined (default = Indoor)
Characteristics of the surroundings	Not defined	
General measures applicable to all activities		
Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).		
General measures (carcinogens)		
Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.		
Technical conditions of use		
PROC1, PROC2, PROC3	Handle substance within a closed system.	
Organisational measures		
PROC2	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).	
PROC8b (Bulk)	Transfer via enclosed lines.	
PROC8b (Drum), PROC2 (Fuel filtering), PROC2 (Storage), PROC16	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).	
PROC8a (Maintenance)	Retain drain downs in sealed storage pending disposal or for subsequent re	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Risk management measures related to human health		
Respiratory protection	No special measures are required.	
Hand and/or Skin protection	PROC1, PROC2, PROC2 (Fuel filtering), PROC2 (Storage), PROC3, PROC8b (Bulk), PROC8b (Drum), PROC16	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training (Efficiency of at least 90 %).
	PROC8a (Maintenance)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training (Efficiency of at least 75 %).
Eye Protection	No special measures are required.	
2.2 Control of environmental exposure		
Amounts used		
Fraction of EU tonnage used in region:	0.1	
Regional use tonnage (tons/year):	5.9E+06	
Fraction of Regional tonnage used locally (tons/year):	2.6E-01	
Annual site tonnage (tons/year):	1.5E+06	
Maximum daily site tonnage (kg/day):	5.0E+06	
Environment factors not influenced by risk management		
Flow rate of receiving surface water (m³/d):	Not defined (default = 18,000)	
Local freshwater dilution factor:	10	
Local marine water dilution factor:	100	
Operational conditions		
Emission days (days/year):	300	
Release fraction to air from process (initial release prior to RMM):	2.0E-04	
Release fraction to wastewater from process (initial release prior to RMM):	1.0E-06	
Release fraction to soil from process (initial release prior to RMM):	0	
Technical conditions and measures at process level (source) to prevent release		
Common practices vary across sites thus conservative process release estimates used.		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil		
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required.		
Treat air emission to provide a typical removal efficiency of (%):	95	
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	92.5	
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0	
Treat soil emission to provide a typical removal efficiency of (%):	Not defined	
Common practices vary across sites thus conservative process release estimates used.		
Organisational measures to prevent/limit release from site		
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.		
Conditions and measures related to municipal sewage treatment plant		
Size of municipal sewage system/treatment plant (m³/d)	2.0E+03	
Degradation effectiveness (%)	94.2	
Conditions and measures related to external treatment of waste for disposal		
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.		
Substance release quantities after risk management measures		
Release to waste water from process (mg/l)	Not defined	
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):	5.4E+06	

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC16) The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC2 (Fuel filtering), PROC3, PROC8a (Maintenance), PROC8b (Bulk), PROC8b (Drum))
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SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Process Category [PROC]	Inhalation		Dermal		Combined
	Inhalation exposure (mg/m ³)	Risk characterisation ratio (RCR)	Dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PROC1	0.01	0.04	0.03	0.57	0.61
PROC2	0.03	0.17	0.03	0.57	0.73
PROC2 (Fuel filtering)	0.04	0.21	0.03	0.57	0.78
PROC2 (Storage)	0.04	0.21	0.03	0.57	0.78
PROC3	0.04	0.21	0.03	0.57	0.78
PROC8a (Maintenance)	0.00	0.01	0.05	0.83	0.85
PROC8b (Bulk)	0.06	0.36	0.03	0.57	0.92
PROC8b (Drum)	0.03	0.19	0.03	0.57	0.76
PROC16	0.01	0.06	0.03	0.57	0.62

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model)

The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Fuel oil, residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	Freshwater	Marine water	Soil	Freshwater sediment	Marine sediment
Predicted Environmental Exposure (PEC)	1.5E-01 mg/l	1.5E-02 mg/l	1.5E-03 mg/l	6.3E-02 mg/kg ww	1.8E+00 mg/kg ww	4.6E-02 mg/kg ww
Risk characterisation ratio (RCR)	1.6E-01	6.1E-01	6.1E-02	3.0E-04	7.7E-01	7.7E-02

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	2.2E+01	8.7E-01
Inhalation	3.4E+00	6.6E-02

4. Evaluation guidance to downstream user

For scaling see	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	
Exposure assessment instrument/tool/method	Worker	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC16) The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC2 (Fuel filtering), PROC3, PROC8a (Maintenance), PROC8b (Bulk), PROC8b (Drum))
	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

Exposure Scenario 4 – Use of Fuel oil, residual as a Fuel (Professional)

1.0 Contributing scenarios		
Sector of Use [SU]	SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)	
Process Category [PROC]	PROC1 PROC2 PROC2 (Storage) PROC3 PROC8a (Maintenance) PROC8b (Bulk) PROC8b (Drum/batch transfers) PROC8b (Refuelling) PROC16	
Chemical Product Category [PC]	Not applicable	
Article Categories [AC]	Not applicable	
Environmental Release Categories [ERC]	ERC9a ERC9b	
Specific Environmental Release Categories [SPERC]	ESVOC SpERC 9.12b.v1	
2.0 Operational conditions and risk management measures		
2.1 Control of worker exposure		
Product characteristics		
Physical form of product	Liquid	
Vapour pressure	<0.5 kPa @ STP	
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently).	
Human factors not influenced by risk management		
Potential exposure area	Not defined	
Frequency and duration of use		
Exposure duration per day	PROC1, PROC8a (Maintenance), PROC16	Covers daily exposures up to 8 hours (unless stated differently).
	PROC2 (Storage)	Covers exposure up to 1 - 4 hour(s)
	PROC2, PROC8b (Bulk), PROC8b (Drum), PROC8b (Refuelling)	Covers exposure up to 15 min - 1 hour(s)
	PROC3	Covers exposure up to 15 min
Exposure duration (days/year)	365	
Other operational conditions affecting worker exposure		
Area of use	All PROC's	Not defined (default = Indoor)
Characteristics of the surroundings	Not defined	
General measures applicable to all activities		
Assumes a good basic standard of occupational hygiene is implemented. Assumes activities are at ambient temperature (unless stated differently).		
General measures (carcinogens)		
Consider technical advances and process upgrades (including automation) for the elimination of releases. minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance Where there is potential for exposure: restrict access to authorised persons; provide specific activity training to operators to minimise exposures; wear suitable gloves and coveralls to prevent skin contamination; wear respiratory protection when its use is identified for certain contributing scenario; clear up spills immediately and dispose of waste safely. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Consider the need for risk based health surveillance.		
Technical conditions of use		
PROC1, PROC2, PROC3	Handle substance within a closed system.	
Organisational measures		
PROC2, PROC3, PROC8b (Bulk), PROC8b (Drum)	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).	
PROC2 (Storage), PROC8a (Maintenance), PROC16	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).	
PROC8b (Bulk), PROC8b (Drum)	Ensure material transfers are under containment or extract ventilation. Clear transfer lines prior to	

SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

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	de-coupling.
PROC8b (Bulk), PROC8b (Drum), PROC8a (Maintenance)	Retain drain downs in sealed storage pending disposal or for subsequent recycle.
Risk management measures related to human health	
Respiratory protection	No special measures are required.
Hand and/or Skin protection	PROC1, PROC2 (Storage), PROC3, PROC8b (Bulk), PROC8b (Drum), PROC8b (Refuelling), PROC2, PROC8a (Maintenance) Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training (Efficiency of at least 90 %). Wear chemically resistant gloves (tested to EN374) in combination with specific activity training (Efficiency of at least 95 %).
Eye Protection	No special measures are required.
2.2 Control of environmental exposure	
Amounts used	
Fraction of EU tonnage used in region:	0.1
Regional use tonnage (tons/year):	1.7E+06
Fraction of Regional tonnage used locally (tons/year):	5.0E-04
Annual site tonnage (tons/year):	8.5E+02
Maximum daily site tonnage (kg/day):	2.3E+03
Environment factors not influenced by risk management	
Flow rate of receiving surface water (m³/d):	Not defined (default = 18,000)
Local freshwater dilution factor:	10
Local marine water dilution factor:	100
Operational conditions	
Emission days (days/year):	365
Release fraction to air from wide dispersive use (regional only):	1.0E-05
Release fraction to wastewater from wide dispersive use:	1.0E-07
Release fraction to soil from wide dispersive use (regional only):	1.0E-05
Technical conditions and measures at process level (source) to prevent release	
Common practices vary across sites thus conservative process release estimates used.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required.	
Treat air emission to provide a typical removal efficiency of (%):	Not applicable
Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%):	0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of (%):	0
Treat soil emission to provide a typical removal efficiency of (%):	Not defined
Common practices vary across sites thus conservative process release estimates used.	
Organisational measures to prevent/limit release from site	
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.	
Conditions and measures related to municipal sewage treatment plant	
Size of municipal sewage system/treatment plant (m³/d):	2.0E+03
Degradation effectiveness (%):	94.2
Conditions and measures related to external treatment of waste for disposal	
Combustion emissions limited by required exhaust emission controls. Combustion emissions considered in regional exposure assessment. External treatment and disposal of waste should comply with applicable local and/or national regulations.	
Conditions and measures related to external treatment of waste for disposal	
This substance is consumed during use and no waste of the substance is generated.	
Substance release quantities after risk management measures	
Release to waste water from process (mg/l):	Not defined
Maximum allowable site tonnage (MSafe) based on release following total wastewater treatment removal (kg/d):	3.0E+03

3. Exposure estimation and reference to its source

3.1 Human exposure prediction

Exposure assessment (method/calculation model)	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC3, PROC16). The Advanced REACH Tool (ART) has been used to estimate workplace
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SAFETY DATA SHEET



Date: 30.04.2021

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830

ULSFO

exposures unless otherwise indicated. (PROC2 (Storage), PROC8a (Maintenance), PROC8b (Bulk), PROC8b (Drum) and PROC8b (Refuelling))					
Process Category [PROC]	Inhalation		Dermal		Combined
	Inhalation exposure (mg/m ³)	Risk characterisation ratio (RCR)	Dermal exposure (mg/kg bw/day)	Risk characterisation ratio (RCR)	Risk characterisation ratio (RCR)
PROC1	0.01	0.06	0.03	0.57	0.62
PROC2	0.06	0.33	0.02	0.28	0.62
PROC2 (Storage)	0.04	0.21	0.03	0.57	0.78
PROC3	0.03	0.17	0.03	0.57	0.73
PROC8a (Maintenance)	0.01	0.05	0.05	0.83	0.88
PROC8b (Bulk)	0.03	0.19	0.03	0.57	0.76
PROC8b (Drum)	0.03	0.19	0.03	0.57	0.76
PROC8b (Refuelling)	0.03	0.19	0.03	0.57	0.76
PROC16	0.01	0.06	0.03	0.57	0.62

3.2 Environmental exposure prediction

Exposure assessment (method/calculation model) The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.

Fuel oil, residual is a hydrocarbon UVCB. The hydrocarbon block method is used in PETRORISK to calculate the environmental toxicity (HC5) of each group of components in the substance. These are used to estimate the environmental risk for the substance. Therefore individual environmental compartments PNECs are not available for this product.

Environmental exposure	STP	Freshwater	Marine water	Soil	Freshwater sediment	Marine sediment
Predicted Environmental Exposure (PEC)	7.2E-06 mg/l	1.1E-04 mg/l	7.3E-07 mg/l	6.2E-02 mg/kg ww	1.4E+00 mg/kg ww	3.6E-02 mg/kg ww
Risk characterisation ratio (RCR)	7.5E-06	4.7E-03	6.2E-05	5.7E-05	3.5E-03	4.1E-05

Human exposure prediction:

Route of Exposure	Exposure (µg/kg/Day)	Risk characterisation ratio (RCR)
Oral	2.0E+01	7.7E-01
Inhalation	1.2E-01	2.3E-03

4. Evaluation guidance to downstream user		
For scaling see	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not support the need for a DNEL to be established for other health effects. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).	
Exposure assessment instrument/tool/method	Worker	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated. (PROC1, PROC2, PROC3, PROC16). The Advanced REACH Tool (ART) has been used to estimate workplace exposures unless otherwise indicated. (PROC2 (Storage), PROC8a (Maintenance), PROC8b (Bulk), PROC8b (Drum) and PROC8b (Refuelling))
	Environment	The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 1 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

1 - IDENTIFICAÇÃO DO PRODUTO E DA EMPRESA

Nome do produto ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C
Código interno de identificação BR0350
Principais usos recomendados para a substância ou mistura: Uso como combustível marítimo.
Nome da empresa PETROBRAS DISTRIBUIDORA S.A.
Endereço Rua Correia Vasques 250
20211-140 – Cidade Nova - Rio de Janeiro (RJ).
Telefone 0800 728 9001
Telefone para emergências 08000 24 44 33

2 - IDENTIFICAÇÃO DE PERIGOS

Classificação de perigo do produto: Líquidos inflamáveis – Categoria 3
Corrosão/irritação à pele – Categoria 2
Lesões oculares graves/irritação ocular – Categoria 2B
Carcinogenicidade – Categoria 2
Toxicidade para órgãos-alvo específicos – Exposição única – Categoria 3
Perigo por aspiração – Categoria 1

- Sistema de classificação utilizado: Norma ABNT-NBR 14725-2:2009 – versão corrigida 2:2010.
Sistema Globalmente Harmonizado para a Classificação e Rotulagem de Produtos Químicos, ONU.

Outros perigos que não resultam em uma classificação: O aquecimento ou queima do produto pode liberar hidrocarbonetos poliaromáticos, na forma de particulados ou vapores, e gases irritantes e tóxicos.

ELEMENTOS APROPRIADOS DA ROTULAGEM

- Pictogramas





Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 2 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

- Palavra de advertência** PERIGO
- Frases de perigo:**
- Líquido e vapores altamente inflamáveis.
 - Provoca irritação à pele.
 - Provoca irritação ocular grave.
 - Suspeito de provocar câncer.
 - Pode provocar irritação respiratória.
 - Pode provocar sonolência e vertigem.
 - Pode ser fatal se ingerido e penetrar nas vias respiratórias.
- Frases de precaução:**
- Mantenha afastado de calor, faíscas, chama aberta e superfícies quentes. Não fume.
 - Use luvas de proteção, roupa de proteção, proteção ocular e proteção facial.
 - Lave cuidadosamente as mãos e o rosto após o manuseio.
 - Evite inalar vapores ou névoas.
 - Utilize apenas ao ar livre ou em locais bem ventilados.
 - EM CASO DE INGESTÃO: Contate imediatamente um CENTRO DE INFORMAÇÃO ou um médico.

3 - COMPOSIÇÃO E INFORMAÇÕES SOBRE OS INGREDIENTES

>>>MISTURA

Nome químico comum ou nome técnico:

Óleo combustível marítimo

Natureza química:

Mistura de substâncias de petróleo

Ingredientes que contribuam para o perigo:

Componente	Concentração (%)	CAS
Óleo combustível tipo 1A	88 – 96,5 (v/v)	68476-33-5
Óleo diesel	3,5 – 12 (v/v)	68334-30-5



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 3 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

4 - MEDIDAS DE PRIMEIROS SOCORROS

Inalação:	Remova a vítima para local arejado e mantenha-a em repouso. Monitore a função respiratória. Se a vítima estiver respirando com dificuldade, forneça oxigênio. Se necessário aplique respiração artificial. Procure atenção médica. Leve esta FISPQ.
Contato com a pele:	Remova as roupas e sapatos contaminados. Lave a pele exposta com grande quantidade de água, por pelo menos 15 minutos. Procure atenção médica. Leve esta FISPQ.
Contato com os olhos:	Lave com água corrente por pelo menos 15 minutos, mantendo as pálpebras abertas. Retire lentes de contato quando for o caso. Procure atenção médica imediatamente. Leve esta FISPQ.
Ingestão:	Lave a boca da vítima com água em abundância. NÃO INDUZA O VÔMITO. Procure atenção médica. Leve esta FISPQ.
Sintomas e efeitos mais importantes, agudos ou tardios:	Vermelhidão e dor na pele. Tosse, dor de garganta e falta de ar. Tontura, náusea, dor de cabeça, confusão mental, perda da consciência.
Notas para médico:	Evite contato com o produto ao socorrer a vítima. Mantenha a vítima em repouso e aquecida. Não forneça nada pela boca a uma pessoa inconsciente. O tratamento sintomático deve compreender, sobretudo, medidas de suporte como correção de distúrbios hidroeletrólitos, metabólicos, além de assistência respiratória. Em caso de contato com a pele e/ou com os olhos não fricção as partes atingidas.

5 - MEDIDAS DE COMBATE A INCÊNDIO

Meios de extinção:	Apropriados: Compatível com espuma para hidrocarbonetos, neblina d'água, pó químico e dióxido de carbono (CO ₂). Não recomendados: Água diretamente sobre o líquido em chamas.
Perigos específicos da mistura ou substância:	Os vapores são mais densos que o ar e tendem a se acumular em áreas baixas ou confinadas, como bueiros, porões, etc. Podem deslocar-se por grandes distâncias provocando retrocesso da chama ou novos focos de incêndio tanto em ambientes abertos como confinados. Os contêineres podem explodir se aquecidos. Quando aquecido pode liberar sulfeto de hidrogênio.
Medidas de proteção da equipe de combate a incêndio:	Equipamento de proteção respiratória do tipo autônomo (SCBA) com pressão positiva e vestuário protetor completo. Contêineres e tanques envolvidos no incêndio devem ser resfriados com neblina d'água.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 4 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

6 - MEDIDAS DE CONTROLE PARA DERRAMAMENTO OU VAZAMENTO

Precauções pessoais

Para o pessoal que não faz parte dos serviços de emergência:

Produto inflamável. Remova todas as fontes de ignição. Impeça fagulhas ou chamas. Não fume. Não toque nos recipientes danificados ou no material derramado sem o uso de vestimentas adequadas. Evite inalação e contato com os olhos e com a pele. Utilize equipamento de proteção individual conforme descrito na seção 8.

Para pessoal de serviço de emergência:

Utilizar EPI completo, com luvas de proteção de PVC, calçado de segurança e vestimenta de segurança para proteção de todo o corpo contra respingos de produtos químicos. O material utilizado deve ser impermeável. Em caso de grandes vazamentos, onde a exposição é grande, recomenda-se o uso de máscara de proteção com filtro contra vapores ou névoas.

Precauções ao meio ambiente:

Não descarte diretamente no meio ambiente ou na rede de esgoto. A água de diluição proveniente do combate ao fogo pode causar poluição.

Métodos e materiais para contenção e limpeza:

Colete o produto derramado e coloque em recipiente de emergência, devidamente etiquetado e bem fechado. Adsorva o produto remanescente, com areia seca, terra, vermiculite, ou qualquer outro material inerte. Coloque o material adsorvido em recipientes apropriados e remova-os para local seguro. A água de diluição proveniente do combate ao fogo pode causar poluição. Não descarte diretamente no meio ambiente ou na rede de esgoto.

Diferenças na ação de grandes e pequenos vazamentos:

Não há distinção entre as ações de grandes e pequenos vazamentos para este produto.

7 - MANUSEIO E ARMAZENAMENTO

MEDIDAS TÉCNICAS APROPRIADAS PARA O MANUSEIO

Precauções para manuseio seguro:

Manuseie em uma área ventilada ou com sistema geral de ventilação/exaustão local. Evite formação de vapores ou névoas. Evite exposição ao produto. Evite contato com materiais incompatíveis. Utilize equipamento de proteção individual conforme descrito na seção 8.

- Medidas de higiene:

Não coma, beba ou fume durante o manuseio do produto. Lave bem as mãos antes de comer, beber, fumar ou ir ao banheiro. Roupas contaminadas devem ser trocadas e lavadas antes de sua reutilização.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 5 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

Condições para armazenamento seguro, incluindo qualquer incompatibilidade

Prevenção de incêndio e explosão:

Mantenha afastado do calor, faísca, chama aberta e superfícies quentes. — Não fume. Mantenha o recipiente hermeticamente fechado. Aterre o vaso contentor e o receptor do produto durante transferências. Utilize apenas ferramentas anti-faísca. Evite o acúmulo de cargas eletrostáticas. Utilize equipamento elétrico, de ventilação e de iluminação à prova de explosão.

Condições adequadas:

O local de armazenamento deve conter bacia de contenção para reter o produto, em caso de vazamento. Mantenha os recipientes bem fechados e devidamente identificados. O local de armazenamento deve ter piso impermeável, isento de materiais combustíveis e com dique de contenção para reter em caso de vazamento. Especificações de engenharia devem atender regulamentações locais.

MATERIAIS PARA EMBALAGENS:

Não especificado.

8 - CONTROLE DE EXPOSIÇÃO E PROTEÇÃO INDIVIDUAL

Parâmetros de controle:

- Limites de exposição ocupacional:

Componente	TLV-TWA (ACGIH 2012) (mg/m3)
Óleo Diesel	100

Indicadores biológicos:

Não Estabelecidos.

Medidas de controle de engenharia:

Promova ventilação mecânica e sistema de exaustão direta para o meio exterior. Estas medidas auxiliam na redução da exposição ao produto. Manter as concentrações atmosféricas, dos constituintes do produto, abaixo dos limites de exposição ocupacional indicados.

Medidas de proteção pessoal

- Proteção dos olhos:

Óculos de proteção ou protetor facial contra respingos.

- Proteção da pele e corpo:

Luvas de proteção de PVC. Vestimenta protetora adequada.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 6 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

Proteção respiratória

Recomenda-se a utilização de respirador com filtro para vapores orgânicos para exposições médias acima da metade do TLV-TWA. Nos casos em que a exposição exceda 3 vezes o valor TLV-TWA, utilize respirador do tipo autônomo (SCBA) com suprimento de ar, de peça facial inteira, operado em modo de pressão positiva.

Siga orientação do Programa de Prevenção Respiratória (PPR), 3ª ed. São Paulo: Fundacentro, 2002.

Perigos térmicos:

Não apresenta perigos térmicos.

9 - PROPRIEDADES FÍSICO-QUÍMICAS

Aspecto (estado físico, forma e cor):	Líquido viscoso escuro.
Odor e limite de odor:	Característico de hidrocarbonetos.
pH:	Não aplicável
Ponto de fusão/ponto de congelamento:	Informação referente ao: - Óleo combustível tipo 1A: <30°C - Óleo diesel: -40 – 6C
Ponto de ebulição inicial e faixa de temperatura de ebulição:	> 204,4 °C a 101,325 kPa (760 mmHg).
Ponto de fulgor:	60°C (Método: vaso fechado).
Taxa de evaporação:	Muito lenta.
Inflamabilidade (sólido, gás):	Não aplicável.
Limite inferior/superior de inflamabilidade ou explosividade:	Informação referente ao: - Óleo combustível tipo 1A: Superior: 6% Inferior: 1%
Pressão de vapor:	Informação referente ao: - Óleo combustível tipo 1A: 0,02 – 0,791 kPa a 120°C 0,063 – 0,861 kPa a 150°C - Óleo diesel: 0,4 kPa a 40°C
Densidade de vapor:	Não disponível
Densidade relativa:	0,98 (água a 4°C = 1)



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 7 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

Solubilidade:	Insolúvel em água.
Coeficiente de partição – n-octanol/água:	Informação referente ao: - Óleo combustível tipo 1A: Log kow: 3,9 – 6,0 (valor estimado) - Óleo diesel: Log kow 7,22 (valor estimado)
Temperatura de auto-ignição:	Informação referente ao: - Óleo combustível tipo 1A: 250 – 537°C - Óleo diesel: > 225°C
Temperatura de decomposição:	Não disponível.
Viscosidade:	420 cSt a 50°C (Método MB-293).
Outras informações:	Parte volátil: Desprezível.

10 - ESTABILIDADE E REATIVIDADE

Estabilidade e reatividade:	Estável sob condições usuais de manuseio e armazenamento. Não sofre polimerização.
Possibilidade de reações perigosas:	Risco de incêndio em caso de aquecimento.
Condições a serem evitadas	Temperaturas elevadas. Fontes de ignição e contato com materiais incompatíveis.
Materiais incompatíveis:	Agentes oxidantes fortes e oxigênio concentrado.
Produtos perigosos da decomposição:	O aquecimento ou queima do produto pode liberar hidrocarbonetos poliaromáticos, na forma de vapores. Quando aquecido pode liberar sulfeto de hidrogênio.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 8 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

11 - INFORMAÇÕES TOXICOLÓGICAS

Toxicidade aguda:	Não é esperado que o produto apresente toxicidade aguda. Informação referente ao: - Óleo combustível tipo 1A: DL50 (oral, ratos): > 5000 mg/kg - DL50 (dérmica, coelhos): > 3000 mg/kg
Corrosão/irritação à pele:	Causa irritação a pele com vermelhidão e dor no local atingido.
Lesões oculares graves/ irritação ocular:	Pode causar irritação aos olhos com vermelhidão.
Sensibilização respiratória ou à pele:	Não é esperado que o produto provoque sensibilização respiratória ou à pele.
Mutagenicidade em células germinativas:	Não é esperado que o produto apresente mutagenicidade em células germinativas.
Carcinogenicidade:	Pode provocar câncer. Informações referentes ao: - Óleo combustível tipo 1A: Possível carcinógeno humano (Grupo 2B - IARC). - Óleo combustível marítimo: Suspeito carcinógeno humano.
Toxicidade à reprodução:	Não é esperado que o produto apresente toxicidade à reprodução.
Toxicidade para órgãos-alvo específicos – exposição única:	O produto pode causar irritação das vias aéreas superiores se inalado causando tosse, dor de garganta e falta de ar. Como depressor do sistema nervoso central, pode causar efeitos narcóticos como dor de cabeça, tontura e sonolência. Pode causar confusão mental e perda da consciência na exposição a altas concentrações.
Toxicidade para órgãos-alvo específicos – exposição repetida:	Pode causar dermatite após contato repetido e prolongado com a pele.
Perigo por aspiração:	Pode ser fatal se aspirado.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 9 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

12 - INFORMAÇÕES ECOLÓGICAS

Efeitos ambientais, comportamentos e impactos do produto

Ecotoxicidade:	Não é esperado que o produto apresente ecotoxicidade.
Persistência e degradabilidade:	É esperada baixa degradação e alta persistência.
Potencial bioacumulativo:	É esperado potencial de bioacumulação em organismos aquáticos. Informação referente ao: - Óleo combustível tipo 1A: Log kow: 3,9 – 6,0 (dado estimado). - Óleo combustível marítimo: Log kow 7,22 (dado estimado).
Mobilidade no solo:	Não determinada.
Outros efeitos adversos:	Em caso de grandes derramamentos o produto pode ser perigoso para o meio ambiente devido à possível formação de uma película do produto na superfície da água diminuindo os níveis de oxigênio dissolvido.

13 - CONSIDERAÇÕES SOBRE TRATAMENTO E DISPOSIÇÃO

Métodos recomendados para tratamento e disposição aplicados ao:

- Produto:	Deve ser eliminado como resíduo perigoso de acordo com a avaliados especificamente para cada produto. Devem ser consultadas legislações federais, estaduais e municipais, dentre estas: Lei nº 12.305, de 02 de agosto de 2010 (Política Nacional de Resíduos Sólidos).
- Restos de produtos:	Manter restos do produto em suas embalagens originais, fechadas e dentro de tambores metálicos, devidamente fechados, de acordo com a legislação aplicável. O descarte deve ser realizado conforme o estabelecido para o produto, recomendando-se as rotas de processamento em cimenteiras e a incineração.
- Embalagem usada:	Nunca reutilize embalagens vazias, pois elas podem conter restos do produto e devem ser mantidas fechadas e encaminhadas para serem destruídas em local apropriado. Neste caso, recomenda-se envio para rotas de recuperação dos tambores ou incineração.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 10 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

14 - INFORMAÇÕES SOBRE O TRANSPORTE

Regulamentações nacionais e internacionais

Terrestre Resolução nº 5232 de 14 de Dezembro de 2016 da Agência Nacional de Transportes Terrestres (ANTT), Aprova as Instruções Complementares ao Regulamento do Transporte Terrestre de Produtos Perigosos e suas modificações.

Nº ONU: 1268

Nome apropriado para o embarque: DESTILADOS DE PETRÓLEO, N.E.

Classe de risco/ subclasse de risco principal: 3

Classe de risco/ subclasse de risco subsidiário: NA

Número de risco 30

Grupo de embalagem: III

Hidroviário DPC - Diretoria de Portos e Costas (Transporte em águas brasileiras)

Normas de Autoridade Marítima (NORMAM)

NORMAM 01/DPC: Embarcações Empregadas na Navegação em Mar Aberto

NORMAM 02/DPC: Embarcações Empregadas na Navegação Interior

IMO – —International Maritime Organization|| (Organização Marítima Internacional)

International Maritime Dangerous Goods Code (IMDG Code).
1268

Número ONU:

Nome apropriado para embarque: PETROLEUM DISTILLATES, N.O.S.

Classe de risco/ subclasse de risco principal: 3

Classe de risco/ subclasse de risco subsidiário: NA

Grupo de embalagem: III

EmS: F-E, S-E
O produto não é considerado poluente marinho.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 11 de 13

Data: 22/06/2017

Nº FISPQ: **BR0350**

Versão: 8

Anula e substitui versão: todas anteriores

Perigo ao meio ambiente:
Aéreo

ANAC - Agência Nacional de Aviação Civil – Resolução nº129 de 8 de dezembro de 2009.

RBAC Nº175 – (REGULAMENTO BRASILEIRO DA AVIAÇÃO CIVIL) - TRANSPORTE DE ARTIGOS PERIGOSOS EM AERONAVES CIVIS.

IS Nº 175-001 – INSTRUÇÃO SUPLEMENTAR - IS

ICAO – —International Civil Aviation Organization|| (Organização da Aviação Civil Internacional) – Doc 9284-NA/905

IATA - —International Air Transport Association|| (Associação Internacional de Transporte Aéreo)

Dangerous Goods Regulation (DGR).

Número ONU: 1268

Nome apropriado para embarque: PETROLEUM DISTILLATES, N.O.S.

Classe de risco/ subclasse de risco principal: 3

Classe de risco/ subclasse de risco subsidiário: NA

Grupo de embalagem: III

15 - REGULAMENTAÇÕES

Regulamentações:

Decreto Federal nº 2.657, de 3 de julho de 1998

Norma ABNT-NBR 14725:2012.

Lei nº12.305, de 02 de agosto de 2010 (Política Nacional de Resíduos Sólidos).

Decreto nº 7.404, de 23 de dezembro de 2010.

Portaria MTE nº 704 de 28 de maio de 2015 – Altera a Norma Regulamentadora nº 26.



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 12 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

16 - OUTRAS INFORMAÇÕES

Esta FISPQ foi elaborada com base nos atuais conhecimentos sobre o manuseio apropriado do produto sob as condições normais de uso, de acordo com a aplicação especificada na embalagem. Qualquer outra forma de utilização do produto que envolva a sua combinação com outros materiais, além de formas de uso diversas daquelas indicadas, são de responsabilidade do usuário.

Adverte-se que o manuseio de qualquer substância química requer o conhecimento prévio de seu perigos pelo usuário. No local de trabalho cabe à empresa usuária do produto promover o treinamento de seus empregados e contratados quanto aos possíveis riscos advindos da exposição ao produto químico.

Siglas:

ACGIH - *American Conference of Governmental Industrial Hygienists*

BCF - *Bioconcentration Factor*

CAS - *Chemical Abstracts Service*

CL₅₀ - *Concentração letal 50%*

LEI - *Limite de explosividade inferior*

LES - *Limite de explosividade superior*

NIOSH - *National Institute for Occupational Safety and Health*

OSHA - *Occupational Safety & Health Administration*

PEL - *Permissible Exposure Limit*

REL - *Recommended Exposure Limit*

TLV - *Threshold Limit Value*

TWA - *Time Weighted Average*



Ficha de Informação de Segurança de Produto Químico - FISPQ

PRODUTO: **ÓLEO COMBUSTÍVEL MARÍTIMO BUNKER C**

Página 13 de 13

Data: 22/06/2017

Nº FISPQ: BR0350

Versão: 8

Anula e substitui versão: todas anteriores

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[EPI-USEPA] ESTIMATION PROGRAMS INTERFACE Suite - United States Environmental Protection Agency. Software.

[HSDB] HAZARDOUS SUBSTANCES DATA BANK. Disponível em: <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>. Acesso em: outubro de 2010.

[IARC] INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Disponível em: <http://monographs.iarc.fr/ENG/Classification/index.php>. Acesso em: outubro de 2010.

[IPCS] INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY – INCHEM. Disponível em: <http://www.inchem.org/>. Acesso em: outubro de 2010.

[IPIECA] INTERNATIONAL PETROLEUM INDUSTRY ENVIRONMENTAL CONSERVATION ASSOCIATION. Guidance on the application of Globally Harmonized System (GHS) criteria to petroleum substances. Version 1. June 17th, 2010. Disponível em: http://www.ipieca.org/system/files/publications/ghs_guidance_17_june_2010.pdf. Acesso em: outubro de 2010.

[NIOSH] NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Disponível em: <http://www.cdc.gov/niosh/>. Acesso em: outubro de 2010.

[NITE-GHS JAPAN] NATIONAL INSTITUTE OF TECHNOLOGY AND EVALUATION. Disponível em: http://www.safe.nite.go.jp/english/ghs_index.html. Acesso em: outubro de 2010.

[PETROLEUM HPV] PETROLEUM HIGH PRODUCTION VOLUME. Disponível em: <http://www.petroleumhvp.org/pages/petroleumsubstances.html>. Acesso em: outubro, 2010

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[SIRETOX/INTERTOX] SISTEMA DE INFORMAÇÕES SOBRE RISCOS DE EXPOSIÇÃO QUÍMICA. Disponível em: <http://www.intertox.com.br>. Acesso em: outubro de 2010.

[TOXNET] TOXICOLOGY DATA NETWORKING. ChemIDplus Lite. Disponível em: <http://chem.sis.nlm.nih.gov/>. Acesso em: outubro de 2010.