Government of Canada / Gouvernement du Canada

RISK MANAGEMENT SCOPE

for

Gas Oils and Kerosenes

Environment and Climate Change Canada

Health Canada

May 2019

Canada

Summary of proposed risk management

This document outlines the proposed risk management options under consideration for substances of concern referred to as gas oils and kerosenes which were found to be harmful to the environment. They are considered together in the screening assessment due to their similarity of sources, production, properties and hazard. In addition, compositional variability exists within and between gas oils and kerosenes that can lead to their interchangeable use in products, provided they meet product use specifications. The Government of Canada is proposing to:

- Work with stakeholders to further understand sources of releases of gas oils and kerosenes with aromatic contents of 20% by weight or greater to the environment throughout its lifecycle.

- Develop regulatory or non-regulatory initiatives that would limit industrial releases of gas oils and kerosenes from the pulp and paper sector to levels that are protective of the aquatic environment, taking into account technical and economic feasibility and consideration of socio-economic factors.

Moreover, because certain data gaps remain, the following information should be provided on or before July 10, 2019 to the contact details identified in section 8 of this document to inform risk management decision-making:

1. Presence of gas oils and kerosenes in the Canadian environment, especially surface water and wastewater/biosolids;
2. Identification of standard procedures and analytical methods available for the testing of gas oils and kerosenes in aqueous media (wastewater, surface water, etc.) and biosolids;
3. Efficiency of industrial wastewater treatment methods in removing gas oils and kerosenes from wastewater;
4. Existing information on gas oils and kerosenes composition especially their aromatics content (weight %);
5. Existing alternative substances to gas oils and kerosenes in their industrial use in pulp and paper as processing aids (e.g. felt cleaners, defoamers, etc.);
6. Socio-economic and technical impacts and benefits associated with the proposed risk management for gas oils and kerosenes;
7. Changes in the use patterns for products containing gas oils and kerosenes from previous data collection initiatives (noted in section 4.2 of this document);
8. List of Canadian pulp and paper clients for products containing gas oils and kerosene, especially those used as processing aids in felt cleaners, defoamers, etc.;
9. Quantities of products containing gas oils and kerosenes that are sold to individual pulp and paper mill clients;
10. Percentage of gas oils / kerosenes contained in each product (or more general percentage range for all products);

11. Recommended usage rate of the gas oils and kerosene products by pulp and paper mills and related practice information (e.g., frequency of application, etc.);
12. Identification of suppliers of gas oils and kerosenes or mixtures containing gas oils and kerosenes to pulp and paper facilities.
13. Environment and Climate Change Canada may consider conducting sampling activities to determine the level of gas oils and kerosenes that may be released to the environment. Analytical results will be considered, if available, to inform decision-making regarding how to best manage the risks from gas oils and kerosenes. Stakeholders that may have analytical methods or results to share are encouraged to contact ECCC on or before July 10, 2019 (via the contact details identified in section 8 of this document).

The risk management options outlined in this Risk Management Scope document may evolve through consideration of assessments and risk management options published for other Chemicals Management Plan (CMP) substances as required to ensure effective, coordinated, and consistent risk management decision-making.

Note: The above summary is an abridged list of information sought to inform the risk management decision-making process. Refer to section 3 of this document for more complete details in this regard. It should be noted that the proposed risk management options may evolve through consideration of additional information obtained during the public comment period, from other sources, and from the information presented herein.

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1. Context

The *Canadian Environmental Protection Act, 1999* (CEPA) (Government of Canada, 1999) provides the authority for the Minister of the Environment and the Minister of Health (the Ministers) to conduct assessments to determine if substances are toxic to the environment and/or harmful to human health as set out in section 64 of CEPA[1,2], and if so to manage the associated risks.

Forty-two gas oils and kerosenes were identified as priorities for assessment as they met categorization criteria under subsection 73(1) of CEPA or were considered a priority on the basis of other human health concerns (ECCC, HC, [modified 2017]). The Chemical Abstracts Service Registry Numbers (CAS RN) and Domestic Substances List (DSL) names of these 42 substances are listed in Table A.1, in Appendix A. Gas oils and kerosenes are considered together in the screening assessment due to their similarity of sources, production, properties, and hazard. In addition, compositional variability exists within and between gas oils and kerosenes that can lead to their interchangeable use in products provided they meet product use specifications. As such, the focus of the ecological assessment is on gas oils and kerosenes with aromatic contents of 20 to 80 % by weight. This includes, but is not limited to, the 42 individual gas oil and kerosene substances identified in Appendix A. This range is representative of most gas oils, with the upper end of the range, 80%, considered to be a reasonable worst-case for the aromatics content of gas oils and kerosenes.

2. Issue

Health Canada (HC) and Environment and Climate Change Canada (ECCC) conducted a joint scientific assessment of gas oils and kerosenes and a notice summarizing the draft screening assessment was published by HC and ECCC in the *Canada Gazette*, Part I, on May 11, 2019 (Government of Canada, 2019). For further information on the proposed screening assessment for gas oils and kerosenes, refer to the draft screening assessment.

2.1 Draft screening assessment report conclusion

[1] Section 64 of CEPA: *For the purposes of* [Parts 5 and 6 of CEPA]*, except where the expression "inherently toxic" appears, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that*

- *(a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity;*
- *(b) constitute or may constitute a danger to the environment on which life depends; or*
- *(c) constitute or may constitute a danger in Canada to human life or health.*

[2] A determination of whether one or more of the criteria of section 64 are met is based upon an assessment of potential risks to the environment and/or to human health associated with exposures in the general environment. For humans, this includes, but is not limited to, exposures from ambient and indoor air, drinking water, foodstuffs, and products used by consumers. A conclusion under CEPA is not relevant to, nor does it preclude, an assessment against the hazard criteria specified in the *Hazard Product Regulations*, which are a part of the regulatory framework for the Workplace Hazardous Materials Information System for products intended for workplace use. Similarly, a conclusion on the basis of the criteria contained in section 64 of CEPA does not preclude actions being taken under other sections of CEPA or other Acts.

On the basis of the information available, the draft screening assessment proposes that gas oils and kerosenes with aromatic contents of 20% by weight or greater meet the criteria under paragraph 64(*a*) of CEPA as they are entering or may enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity (Government of Canada, 2018a). However, gas oils and kerosenes with aromatic contents of 20% by weight or greater did not meet the criteria under paragraph 64(*b*) of CEPA as they are not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger to the environment on which life depends.

The draft screening assessment also proposes that the 42 gas oils and kerosenes do not meet the criteria under paragraph 64(*c*) of CEPA as they are not entering the environment in a quantity or concentration or under conditions that constitute a danger in Canada to human life or health.

The exposure source of concern, identified in the draft screening assessment, is based on the use of gas oils and kerosenes as processing aids by paper mills in the pulp and paper sector and their subsequent release in effluents. As such, this document will focus on this application of concern (detailed in section 5.0).

2.2 Proposed recommendation under CEPA

On the basis of the findings of the draft screening assessment conducted as per CEPA, the Ministers propose to recommend that gas oils and kerosenes with aromatic contents of 20% by weight or greater be added to the List of Toxic Substances in Schedule 1 of the Act[3].

The Ministers will take into consideration comments made by stakeholders during the 60-day public comment period on the draft Screening Assessment Report and Risk Management Scope document in the preparation of the final screening assessment and Risk Management Approach document, if required.

If gas oils and kerosenes are concluded to meet one or more of the criteria under section 64 of CEPA at the time of the final screening assessment and the Ministers recommend the addition of these substances to Schedule 1 of CEPA, risk management instrument(s) must be proposed within 24 months from the date on which the final screening assessment is published, and finalized within 18 months from the date on which the risk management instrument(s) are proposed, as outlined in sections 91 and 92 of CEPA.

[3] When a substance is found to meet one or more of the criteria under section 64 of CEPA, the Ministers can propose to take no further action with respect to the substances, add the substance to the Priority Substances List for further assessment, or recommend the addition of the substance to the List of Toxic Substances in Schedule 1 of the Act.

3. Proposed risk management

3.1 Proposed environmental objective

Proposed environmental objectives are quantitative or qualitative statements of what should be achieved to address environmental concerns. In this case, the proposed environmental objective is to prevent or minimize the presence of gas oils and kerosenes with aromatic contents of 20% by weight or greater in the aquatic environment to the greatest extent practicable.

3.2 Proposed risk management objective

Proposed risk management objectives set quantitative or qualitative targets to be achieved by the implementation of risk management regulations, instrument(s) and/or tool(s) for given substance(s) to work towards meeting the proposed environmental objective.

In this case, the proposed risk management objective would be to limit industrial releases to water from facilities processing or using gas oils and kerosenes or products containing gas oils and kerosenes to a level that is protective of the environment, taking into account technical and economic feasibility and consideration of socio-economic factors. The aquatic predicted no-effect concentrations (PNECs) derived in the screening assessment for gas oils and kerosenes (4 to 14 µg/L; varying based on aromatic contents of 20-80% by weight in these substances) may be used as goals for this objective.

Such objectives will be refined on the basis of consultation with stakeholders, the proposed risk management, consideration of further information received, the outcome of the final Screening Assessment Report, and socio-economic and technical considerations (such as may be outlined in section 6 of this document). Revised environmental and risk management objectives should next be presented in the Risk Management Approach document that will be published concurrently with the final Screening Assessment Report for these substances, or in subsequent risk management documents (e.g., consultation document on proposed instrument), as the case may be.

3.3 Proposed risk management options under consideration

To achieve the proposed risk management objective and to work towards achieving the proposed environmental objective, the proposed risk management options under consideration for gas oils and kerosenes with aromatic contents of 20% by weight or greater include the implementation of regulatory and non-regulatory controls to limit releases of gas oils and kerosenes to the aquatic environment.

Note that the proposed risk management options are preliminary and subject to change. Following the publication of this document, additional information obtained from the public comment period and from other sources will be considered in the instrument

selection and development process[4]. The risk management options outlined in this document may also evolve through consideration of assessments and risk management options published for other CMP substances to ensure effective, coordinated, and consistent risk management decision-making.

Of note, other activities to track commercial use patterns associated with gas oils and kerosenes in various industrial sectors including pulp and paper may be considered in the future.

3.4 Risk management information gaps

Interested stakeholders are invited to provide information, such as outlined below, to inform risk assessment and risk management decision-making regarding gas oils and kerosenes:

1. Presence of gas oils and kerosenes in the Canadian environment, especially surface water, and wastewater/biosolids;
2. Identification of standard procedures and analytical methods available for the testing of gas oils and kerosenes in aqueous media (wastewater, surface water, etc.) and biosolids;
3. Efficiency of industrial wastewater treatment methods in removing gas oils and kerosenes from wastewater;
4. Existing information on gas oils and kerosenes composition especially their aromatics content (weight %)
5. Existing alternative substances to gas oils and kerosenes in their industrial use in pulp and paper as processing aids (e.g. felt cleaners and defoamers);
6. Socio-economic and technical impacts and benefits associated with the proposed risk management for gas oils and kerosenes;
7. Changes in the use patterns for products containing gas oils and kerosenes from previous data collection initiatives (noted in section 4.2 of this document);
8. List of Canadian pulp and paper clients for products containing gas oils and kerosene, especially those used as processing aids in felt cleaners, defoamers, etc.;
9. Quantities of products containing gas oils and kerosenes that are sold to individual pulp and paper mill clients;
10. Percentage of gas oils / kerosenes contained in each product (or more general percentage range for all products);
11. Recommended usage rate of the gas oils and kerosene products by pulp and paper mills and related practice information (e.g., frequency of application, etc.);
12. Identification of suppliers of gas oils and kerosenes or mixtures containing gas oils and kerosenes to pulp and paper facilities.

[4] The proposed risk management regulation(s), instrument(s) or tool(s) will be selected using a thorough, consistent and efficient approach and take into consideration available information in line with the Government of Canada's Cabinet Directive on Regulatory Management (Government of Canada, 2012a), the Red Tape Reduction Action Plan (Government of Canada, 2012b), and in the case of a regulation the *Red Tape Reduction Act* (Government of Canada, 2017c).

13. Environment and Climate Change Canada may consider conducting sampling activities to determine the level of gas oils and kerosenes that may be released to the environment. Analytical results will be considered, if available, to inform decision-making regarding how to best manage the risks from gas oils and kerosenes. Stakeholders that may have analytical methods or results to share are encouraged to contact ECCC on or before July 10, 2019 (via the contact details identified in section 8 of this document).

Should stakeholders have further information to help address these gaps, they should provide it ideally on or before July 10, 2019 to inform the risk assessment and risk management decision-making process, within the timelines and to the contact identified in section 8 of this document.

4. Background

4.1 General information on gas oils and kerosenes

Gas oils and kerosenes are complex and highly variable combinations of hydrocarbons produced either directly through atmospheric distillation of crude oil or by the cracking of heavier vacuum distillation streams into lighter fractions. Gas oils consist predominantly of molecules in the carbon range of C_9 to C_{30} while kerosenes consist of hydrocarbons in the range of C_9 to C_{16}. They are considered together in the screening assessment due to their similarity of sources, production, properties and hazard. In addition, compositional variability exists within and between gas oils and kerosenes that can lead to their interchangeable use in products provided they meet product use specifications. Gas oils and kerosenes are considered to be
of Unknown or Variable composition, Complex reaction products or Biological materials (UVCBs).

4.2 Current uses and identified sectors

A major use of gas oils and kerosenes is as fuels, or as blending components in the production of fuels. This assessment does not consider the use of kerosenes in aviation fuels or gas oils in fuels (e.g., Fuel Oil No. 2) as these have been assessed previously (Environement Canada, Health Canada, 2014) and (Environment Canada, Health Canada, 2015). In addition, some gas oil CAS RNs were addressed previously for site- (1 CAS RN) or industry- (2 CAS RN) restricted uses (Environment Canada, Health Canada, 2011) and (Environment Canada, Health Canada, 2013). This assessment also did not consider the use of gas oils and kerosenes as petroleum diluent, as this is more suitably considered in the context of the petroleum substance(s) that has been diluted.

Seven gas oils were included in the *Notice with respect to certain high priority petroleum substances on the Domestic Substances List*, published under section 71 of CEPA (Government of Canada, 2011). According to the information submitted, the total quantity of gas oils manufactured in 2010 under these seven CAS RNs was greater than 10 million tonnes; the total imported quantity was between 1 and 10 million tonnes; the

total exported quantity was between 100 000 and 1 million tonnes; and, the total quantity transported was over 2.5 million tonnes, with almost all of this being transported by pipeline (Environment Canada, 2012).

The seven[5] gas oil CAS RNs surveyed in 2011 had eight different reported uses including petroleum diluents, lubricants, oil production aids, printing inks, adhesives and sealants, processing aids, consumer care products, paints and coatings (Environment Canada, 2012).

Furthermore, in 2015, several gas oils and kerosenes were also identified as being used in manufacturing by several sectors, including automotive manufacturing, fibres and filament manufacturing and the pulp and paper sector (ECCC, 2016a). The 2015 survey collected information on industrial and commercial usage patterns, but not quantities, and included 19 of the gas oils and kerosenes (Annex A) that were not included in the previous surveys. Information on the usage patterns of 12 gas oils and kerosenes were also reported under a 2015 voluntary data gathering initiative (ECCC 2016b).

Gas oils and kerosenes were identified in or as having the potential to be ingredients in products available to the general Canadian population. These substances are listed as ingredients in products from a range of categories including adhesives and sealants, automotive care and maintenance products, fabric treatments, fuel and solvents, hobby and craft products, household cleaning products, lawn and garden care products, lubricants, paints and coatings, professional-grade inks and also in products with miscellaneous uses ((Meridian, 2009), (HHPD, 2016), (Environment Canada, 2012), (ECCC, 2016a) and (ECCC, 2016b)).

The industrial uses of gas oils and kerosenes identified as having the highest potential for release to the environment (are: formulation of lubricants or lubricant additives; formulation of various products, including oil-water separation aids, printing inks, adhesives and sealants, processing aids, consumer products, and paints and coatings; the industrial application of certain formulated products including printing inks, adhesives and sealants, and paints and coatings; the use of processing aids by paper mills; and the use of processing aids by facilities in other sectors, including plastics and rubber, fabricated metal, machinery, and transportation equipment..

5. Exposure sources and identified risks

Although gas oils and kerosenes are used in a number of industrial applications, the exposure of concern and identified risks occur in the pulp and paper industry. Gas oils and kerosenes in the industrial water stream are subject to wastewater treatment, but residual gas oils and kerosenes in the treated wastewater effluents may be released into the environment.

Information on the uses of gas oils and kerosenes in the pulp and paper sector indicates the potential for releases into the Canadian environment through wastewater from their

[5] Seven gas oils (CASRNs 64741-77-1, 64742-30-9, 64742-46-7, 68477-31-6, 64742-13-8, 64742-79-6, and 64741-91-9) were included in the *Notice with respect to certain high priority petroleum substances on the* Domestic Substances List. *Canada Gazette*, Part I, Vol. 145, no. 51. Dec. 17, 2011. pp. 3740–3762.

use as processing aids (e.g. felt cleaners, defoamers, etc.). Based on the estimated exposure concentrations in the environment and identified hazards it was determined that gas oils and kerosenes have high chronic toxicity to aquatic organisms. These substances will persist in water long enough to cause chronic toxicity, and they are released on a continuous basis from industry. Assumptions concerning the percentage of aromatic content of the gas oils and kerosenes used in the paper sector were made as this information was not available. Exposure estimates were based on gas oils and kerosenes with aromatic contents ranging from 20 % to 80 % by weight (wt%). Various lines of evidence were considered when determining risk.

6. Risk management considerations

6.1 Alternatives

Other chemical substances may be available as alternatives to gas oils and kerosenes for various industrial applications including as processing aids in the pulp and paper sector. However, there are data gaps on the socioeconomic implications associated with the substitution of these alternatives in their use as processing aids. Stakeholders, in particular, suppliers of gas oils and kerosenes and/or processing aids to the pulp and paper sector, are invited to provide this information on or before July 10, 2019.

6.2 Technical considerations

It is anticipated that conventional biological treatment techniques may be effective for removing most gas oils and kerosenes from wastewater effluents. For example, it was estimated using a model described in the draft screening assessment (dSAR) that 90 percent of gas oils and kerosenes will be removed in a domestic waste water treatment system (refer to section 7.2.3 of the dSAR). However this is not protective to the environment, and therefore it is recommended to use other best management practices in addition to wastewater treatment (such as, but not limited to, recycling and re-use in the process, or better disposal means, where possible) or additional wastewater treatment processes (i.e. tertiary treatment, or additional polishing stages, etc.)

6.3 Socio-economic context

No information on socio-economic factors for gas oils and kerosenes used as processing aids in the pulp and paper sector was identified. Socio-economic factors, such as incremental costs associated with improving removal efficiency of wastewater treatments for gas oils and kerosenes, as well as incremental costs associated with alternative substances, will be considered in the selection process for the regulatory and non-regulatory controls to minimize the release of gas oils and kerosenes to the Canadian environment, and in refining the risk management objective. Socio-economic factors would also be considered in the development of the instrument(s) as identified in the Cabinet Directive on Regulatory Management[6]. We ask that stakeholders please submit this information, if known.

[6] Government of Canada's Cabinet Directive on Regulatory Management (Government of Canada, 2012a), Red Tape Reduction Action Plan (Government of Canada, 2012b), *Red Tape Reduction Act* (Government of Canada, 2017c)

7. Overview of existing risk management

7.1 Related Canadian risk management context

An extensive regulatory regime for the management of petroleum hydrocarbons exists in Canada, including measures related to their composition, storage, transport and use. However, no risk management measures specifically address gas oils and kerosenes in terms of preventing or minimizing their presence in the aquatic environment.

7.1.1 Federal measures

Current risk management related to gas oils and kerosenes includes measures under federal Acts including CEPA, the *Fisheries Act* (Government of Canada, 1985a), the *National Energy Board Act* (Government of Canada, 1985b), the *Canada Shipping Act, 2001* (Government of Canada, 2001), *Transportation of Dangerous Goods Act, 1992* (Government of Canada, 1992a) and the *Railway Safety Act* (Government of Canada, 1985c).

Effluents from pulp and paper mills are regulated by the *Pulp and Paper Effluent Regulations* (PPER) of the *Fisheries Act*. These regulations establish effluent release limits for biochemical oxygen demand (BOD) and total suspended solids (TSS), and prohibit the discharge of acutely lethal effluent to fish. Although gas oils and kerosenes are not within the prescribed list of deleterious substances of the PPER, the level of wastewater treatment required to meet the PPER requirements may also remove some of these substances. Some provinces, such as Ontario and Quebec, also prescribe effluent limits in their regulations for the pulp and paper sector. Some provinces go beyond the *Pulp and Paper Effluent Regulations* by also limiting concentrations of specific substances, including total petroleum hydrocarbons.

Gas oils and kerosenes, if intended to be disposed of or recycled, are also covered by the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* (Government of Canada, 2005) and the *Interprovincial Movement of Hazardous Waste Regulations* administered by Environment and Climate Change Canada (ECCC, 2002).

Gas oils and kerosene CASRNs used in pesticides include 64741-44-2, 64741-77-1, 64742-46-7, 64742-47-8, 64742-94-5, 64742-96-7, 64747-88-7, 68477-31-6 and are considered List 2 formulants (potentially toxic formulants with high priority for testing) by Health Canada's Pest Management Regulatory Agency (PMRA) (ECCC, HC, [modified 2017]) and 64742-46-7 is also a List 2 Component while 8008-20-6 is a list 3 formulant.

7.1.2 Provincial, territorial and municipal measures

The Ministry of Environment, Conservation and Parks (MECP) of the Province of Ontario has Provincial Water Quality Objectives (PWQOs) meant to be protective of aquatic life and public health (Province of Ontario, 1994). Meeting these objectives is a minimum requirement. A similar framework of federal, provincial, and municipal guidelines and regulations across Canada is expected to ensure that exposure to oil and grease, benzene, toluene, ethylbenzene, and xylenes (BTEX) originating from petroleum hydrocarbons including gas oil and kerosenes through drinking water or recreational water use is minimal.

The Quebec Minister of Sustainable Development, the Environment and the Fight against Climate Change *Regulations respecting pulp and paper mills* (*Règlement sur les fabriques de pâtes et papiers* - R.Q. c. Q-2, r.27) establish environmental standards for effluent discharge. This regulation details considerations for the measurement and control of chemical parameters including petroleum hydrocarbons (C_{10}-C_{50}) mainly from lubricant losses. However the standard does not apply to mills that discharge their final effluent into a municipal sewer system or combined (Province of Quebec, 2007).

7.2 Pertinent international risk management context

As in Canada, international jurisdictions have also implemented regulatory regimes to manage petroleum hydrocarbons which may also include gas oils and kerosene substances from various sources. Selected measures from the United States and Europe are discussed below. However, most of these measures deal with their composition, storage, and transport and do not necessarily prevent or minimize their presence in the aquatic environment.

7.2.1 United States

The United States Environmental Protection Agency (EPA) requires reporting and record-keeping by persons who manufacture, import, process, and/or distribute chemical substances in commerce under section 8 of the Toxic Substances Control Act (US EPA, 1976). Some of the substances in the gas oils and kerosenes grouping (i.e. kerosene (CASRN 8008-20-6 and gas oils (CASRN 64741-43-1) were reported under the Chemical Data Reporting (CDR) Rule formerly known as the Toxics Substances Control Act (TSCA) Inventory Update Rule (IUR) for the 2016 reporting year and under the TSCA Inventory Update Rule for the following reporting period(s): 1986, 1990, 1994, 1998. Some substances are also listed on the U.S. High Production Volume (HPV) under the 1990 Challenge Program Chemical List. HPV chemicals in the United States are produced or imported in quantities of 1 million pounds or more per year (American Petroleum Institute, 2011). Kerosene (petroleum) CASRN 8008-20-6, for example, is also listed on the Massachusetts, Minnesota, New Jersey, Pennsylvania, and Rhode Island Right-to-Know state programs.

Transportation of substances that may pose a flammability or explosion hazard is covered under the U.S. Department of Transportation's *Hazardous Materials Regulations* (U.S. Department of Transportation, 2005).

The *Clean Water Act* (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under the CWA, EPA has implemented pollution control programs such as setting wastewater standards for industry. EPA has also set water quality standards for contaminants in surface waters (US EPA, 1972).

7.2.2 Europe

In Europe, the Directive on Industrial Emissions (Integrated Pollution Prevention and Control) , (European Union, 2010) which entered into force in 2013, sets out the main principles for the permitting and control of industrial installations based on an integrated approach and the application of best available techniques. Operators of industrial installations conducting activities covered by the Directive are required to obtain an environmental permit from the national authority in their country.

Some of the gas oils and kerosene substances have inventory status under the European Union's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) regulation. Some of the CASRNs in the gas oils and kerosenes grouping are also listed on the 2007 OECD List of High Production Volume (HPV) Chemicals programs, with 1000 tonnes or more produced per year (OECD, 2007). Kerosene (petroleum) CASRN 8008-20-6, for example, is also on the UN Recommendation on Transport of Dangerous Goods (14th Edition), from December 2004.

8. Next steps

8.1 Public comment period

Stakeholders are invited to submit comments on the content of this RM Scope or other information (such as outlined in section 3.4 of this document) that would help to inform decision-making for these substances. Please submit additional information and comments prior to July 10, 2019. If needed, the RM Approach, which will outline and seek input on the proposed risk management instrument(s) moving forward, will be published at the same time as the final screening assessment. At that time, there will be a further opportunity for public comment on the RM Approach only. Comments and information submissions on the RM Scope should be submitted to the address provided below:

Environment and Climate Change Canada
Chemicals Management Division
Gatineau (Quebec) K1A 0H3
Tel: 1-800-567-1999 | 819-938-3232
Fax: 819-938-3231
E-mail: eccc.substances.eccc@canada.ca

Companies that have a business interest in gas oils and kerosenes are encouraged to identify themselves as stakeholders. Stakeholders will be informed of future decisions regarding gas oils and kerosenes and may be contacted for further information.

8.2 Timing of actions

Electronic consultation on the Risk Management Scope: May 11, 2019 to July 10, 2019

Publication of responses to public comments on the draft screening assessment and Risk Management Scope: on or before summer, 2020

Publication of the final screening assessment and, if required, the Risk Management Approach document: on or before summer 2020

Publication of responses to public comments on the Risk Management Approach, if applicable and if required, the proposed instrument(s): at the latest, 24-month from the publication of the final screening assessment

Consultation on the proposed instrument(s), if required: 60-day public comment period starting upon publication of each proposed instrument(s)

Publication of the final instrument(s), if required: at the latest, 18-month from the publication of each proposed instrument(s)

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ANNEX A. Gas Oils and Kerosenes – Identification of substances identified as priorities for assessment as they met categorization criteria under subsection 73(1) of CEPA or were considered a priority on the basis of other human health concerns.

CAS RN[a]	DSL Name	DSL Definition
8008-20-6	Kerosene (petroleum)	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 through C16 and boiling in the range of approximately 180°C to 300°C (356°F to 572°F).
64741-43-1	Gas oils (petroleum), straight-run	A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C25 and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).
64741-44-2	Distillates (petroleum), straight-run midlle	A complex combination of hydrocarbons produced by the distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C20 and boiling in the range of 205°C to 345°C (401°F to 653°F).
64741-49-7	Condensates (petroleum), vacuum tower	A complex combination of hydrocarbons produced as the lowest boiling stream in the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C25 and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).
64741-58-8	Gas oils (petroleum), light vacuum	A complex combination of hydrocarbons produced by the vacuum distillation of the residuum from atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C13 through C30 and boiling in the range of approximately 230°C to 450°C (446°F to 842°F).

CAS RN[a]	DSL Name	DSL Definition
64741-60-2	Distillates (petroleum), intermediate catalytic cracked	A complex combination of hydrocarbons produced by the distillation of products from a catalytic cracking process. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C30 and boiling in the range of approximately 205°C to 450°C (401°F to 842°F). It contains a relatively large proportion of tricyclic aromatic hydrocarbons.
64741-77-1	Distillates (petroleum), light hydrocracked	A complex combination of hydrocarbons from distillation of the products from a hydrocracking process. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C10 through C18, and boiling in the range of approximately 160°C to 320°C (320°F to 608°F).
64741-85-1	Raffinates (petroleum), sorption process	A complex combination of hydrocarbons remaining after removal of normal paraffins in a selective adsorption process. It consists predominantly of branched chain and cyclic hydrocarbons having carbon numbers predominantly in the range of C5 through C25 and boiling in the range of approximately 35°C to 400°C (95°F to 752°F).
64741-90-8	Gas oils (petroleum), solvent-refined	A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C11 through C25 and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).
64741-91-9	Distillates (petroleum), solvent-refined middle	A complex combination of hydrocarbons obtained as the raffinate from a solvent extraction process. It consists predominantly of aliphatic hydrocarbons having carbon numbers predominantly in the range of C9 through C20 and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).
64742-06-9	Extracts (petroleum), middle distillate solvent	A complex combination of hydrocarbons obtained as the extract from a solvent extraction process. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C20 and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).

CAS RN[a]	DSL Name	DSL Definition
64742-13-8	Distillates (petroleum), acid-treated middle	A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C20 and boiling in the range of approximately 205°C to 345°C (401°F to 653°F).
64742-14-9	Distillates (petroleum), acid-treated light	A complex combination of hydrocarbons obtained as a raffinate from a sulfuric acid treating process. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).
64742-30-9	Distillates (petroleum), chemically neutralized middle	A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C20 and boiling in the range of approximately 205°C to 345°C (401°F to 653°F).
64742-31-0	Distillates (petroleum), chemically neutralized light	A complex combination of hydrocarbons produced by a treating process to remove acidic materials. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).
64742-38-7	Distillates (petroleum), clay-treated middle	A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay, usually in a percolation process to remove the trace amounts of polar compounds and impurities present. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C20 and boiling in the range of approximately 150°C to 345°C (302°F to 653°F).
64742-46-7	Distillates (petroleum), hydrotreated middle	A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C11 through C25 and boiling in the range of approximately 205°C to 400°C (401°F to 752°F).
64742-47-8	Distillates (petroleum), hydrotreated light	A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).

CAS RN[a]	DSL Name	DSL Definition
64742-72-9	Distillates (petroleum),catalytic dewaxed middle	A complex combination of hydrocarbons obtained from a catalytic dewaxing process. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C20 and boiling in the range of approximately 150° to 345°C (302°F to 653°F).
64742-77-4	Distillates (petroleum), complex dewaxed middle	A complex combination of hydrocarbons obtained by removing straight chain paraffin hydrocarbons as solid adducts by treatment with an agent such as urea. It consists predominantly of hydrocarbons having carbon numbers in the range of C9 to C20 and boiling in the range of approximately 150°C to 345°C (302°C to 653°F).
64742-79-6	Gas oils (petroleum), hydrodesulfurized	A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C13 through C25 and boiling in the range of approximately 230°C to 400°C (446°F to 752°F).
64742-81-0	Kerosine (petroleum), hydrodesulfurized	A complex combination of hydrocarbons obtained from a petroleum stock by treating with hydrogen to convert organic sulfur to hydrogen sulfide which is removed. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150°C to 290°C (302°F to 554°F).
64742-87-6	Gas oils (petroleum), hydrodesulfurized light vacuum	A complex combination of hydrocarbons obtained from a catalytic hydrodesulfurization process. It consists of hydrocarbons having carbon numbers predominantly in the range of C13 through C30 and boiling in the range of approximately 230°C to 450°C (446°F to 842°F).
64742-88-7	Solvent naphtha (petroleum), medium aliph.	A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C9 through C12 and boiling in the range of approximately 140°C to 220°C (284°F to 428°F).
64742-91-2	Distillates (petroleum), steam-cracked	A complex combination of hydrocarbons obtained by the distillation of the products from a steam cracking process. It consists predominantly of unsaturated hydrocarbons having carbon numbers predominantly in the range of C7 through C16 and boiling in the range of approximately 90°C to 290°C (194°F to 554°F).
64742-94-5	Solvent naphtha (petroleum), heavy arom.	A complex combination of hydrocarbons obtained from distillation of aromatic streams. It consists predominantly of aromatic hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 165°C to 290°C (330°F to 554°F).

CAS RN[a]	DSL Name	DSL Definition
64742-96-7	Solvent naphtha (petroleum), heavy aliph.	A complex combination of hydrocarbons obtained from the distillation of crude oil or natural gasoline. It consists predominantly of saturated hydrocarbons having carbon numbers predominantly in the range of C11 through C16 and boiling in the range of approximately 190°C to 290°C (374°F to 554°F).
68333-88-0	Aromatic hydrocarbons, C9-17	NA – DSL or other definition not available (NCI 2015)
68477-30-5	Distillates (petroleum), catalytic reformer fractionator residue, intermediate-boiling	A complex combination of hydrocarbons from the distillation of catalytic reformer fractionator residue. It boils in the range of approximately 288°C to 371°C (550°F to 700°F).
68477-31-6	Distillates (petroleum), catalytic reformer fractionator residue, low-boiling	The complex combination of hydrocarbons from the distillation of catalytic reformer fractionator residue. It boils approximately below 288°C (550°F).
68814-87-9	Distillates (petroleum), full-range straight-run middle	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 through C25 and boiling in the range of approximately 150°C to 400°C (302°F to 752°F).
68915-96-8	Distillates (petroleum), heavy straight-run	A complex combination of hydrocarbons produced by the atmospheric distillation of crude oil. It boils in the range of approximately 288°C to 471°C (550°F to 880°F).
68915-97-9	Gas Oils (petroleum) straight-run, high-boiling	A complex combination of hydrocarbons produced by the atmospheric distillation of crude oil. It boils in the range of approximately 282°C to 349°C (540°F to 660°F).
68919-17-5	Hydrocarbons, C12-20, catalytic alkylation by-products	The complex combination of hydrocarbons obtained by the catalytic alkylation of benzene with propylene. It consists of hydrocarbons having carbon numbers predominantly in the range of C12 through C20 and boiling in the range of approximately 250°C to 350°C (482°F to 662°F).
68921-07-3	Distillates (petroleum), hydrotreated light catalytic cracked	A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst.
92704-36-4	Gas oils (petroleum), straight-run, clay-treated	A complex combination of hydrocarbons resulting from treatment of a petroleum fraction with natural or modified clay in either a contact or percolation process to remove the trace amounts of polar compounds and impurities present. It consists predominantly of hydrocarbons having carbon numbers predominantly in the range of C10 through C25 and boiling in the range of approximately 160°C to 410°C (320°F to 770°F).

CAS RN[a]	DSL Name	DSL Definition
128683-26-1	Distillates (petroleum), full-range atm.	A complex combination of hydrocarbons produced by the distillation of the crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C2 through C20 and boiling in the range of approximately -38°C to 340°C (-36°F to 644°F).
128683-27-2	Distillates (oil sand), straight-run middle	A complex combination of hydrocarbons produced by the distillation of the synthetic crude oil from oil sands. It consists predominantly of cycloparaffinic and aromatic hydrocarbons with carbon numbers predominantly in the range of C9 through C20 and boiling in the range of approximately 170°C to 370°C (338°F to 698°F).
128683-28-3	Gas oils (petroleum), full-range	A complex combination of hydrocarbons produced by the atmospheric distillation of crude oil. It consists of hydrocarbons having carbon numbers predominantly in the range of C2 through C30 and boiling in the range of approximately -38°C to 460°C (-36°F to 860°F).
128683-29-4	Gas oils (oil sand), hydrotreated	A complex combination of hydrocarbons obtained by treating a distillate of the product of a bitumen cracking process with hydrogen in the presence of a catalyst. It consists primarily of hydrocarbons, aromatic hydrocarbons, and heterocyclic aromatics having carbon numbers predominantly in the range of C11 to C40. It has an aromatic content greater than 5% and boils in the range of approximately -190°C to 550°C (-310°F to 1022°F).
128683-30-7	Gas oils (oil sand)	A complex combination of hydrocarbons obtained by the distillation of the products of a bitumen cracking process. It consists primarily of hydrocarbons, aromatic hydrocarbons, and heterocyclic aromatics having carbon numbers predominantly in the range of C11 to C40. It has an aromatic content greater than 5% and boils in the range of approximately 230°C to 550°C (446°F to 1022°F). It is the feed for a gas oil hydrotreater.
129893-10-3	Residues (petroleum), vacuum, hydrocracked, middle distillate fraction	A complex combination of hydrocarbons produced when petroleum vacuum tower residuum is thermally cracked in the presence of hydrogen at high pressure and then fractionated. This fraction consists of a complex combination of hydrocarbons having carbon numbers primarily in the range of C9 to C22, and boils in the range of approximately 50°C to 370°C (302°F to 698°F). There will also be small amounts of sulfur compounds.

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