Section 1 Exposure scenario title

Title:
Manufacture of substance

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC1: Manufacture of substances
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOC 1.1.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:
Manufacture of the substance or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 - 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:
No other specific measures identified [EI20]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

Material storage [CS67] PROC2:
Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:
Handle substance within a closed system [E47]

General exposures (open systems) [CS16] PROC4:
No other specific measures identified [EI20]

Equipment cleaning and maintenance [CS39] PROC8a:
No other specific measures identified [EI20]

Process sampling [CS2] PROC8b:
No other specific measures identified [EI20]

Bulk transfers [CS14] (open systems) [CS108] PROC8b:
No other specific measures identified [EI20]

Bulk transfers [CS14] (closed systems) [CS107] PROC8b:
Handle substance within a closed system [E47]

Laboratory activities [CS36] PROC15:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 13000

Frequency and duration of use
Emission days (days/year): 100

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.05
Release fraction to wastewater from process (initial release prior to RMM): 0.0003
Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. If discharging to domestic sewage treatment plant, no onsite wastewater treatment required [TCR10].
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 >=(%): 11.3
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 330000
Assumed domestic sewage treatment plant flow (m^3/day): 10000

Conditions and measures related to external treatment of waste for disposal
During manufacturing no waste of the substance is generated [ETW4].

Conditions and measures related to external recovery of waste
During manufacturing no waste of the substance is generated [ERW2].

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Distribution of substance

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC1: Manufacture of substances
ERC2: Formulation of preparations
ERC3: Formulation in materials
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 polymerization
ERC6d: Industrial use of auxiliaries for polymerization processes in production of resins, rubbers, polymers
ERC7: Industrial use of substances in closed systems
Specific Environmental Release Category: ESVOC 1.1b.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:
Bulk loading (including marine vessel/barge, road/rail car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading, maintenance and associated laboratory activities. Excludes emissions during transport.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 - 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:
Handle substance within a closed system [E47]

Material storage [CS67] PROC1:
Store substance within a closed system [E84]

Material storage [CS67] PROC2:
Store substance within a closed system [E84]

Process sampling [CS2] PROC3:
No other specific measures identified [EI20]

General exposures (open systems) [CS16] PROC4:
No other specific measures identified [EI20]

Equipment cleaning and maintenance [CS39] PROC8a:
No other specific measures identified [EI20]

Bulk transfers [CS14] (open systems) [CS108] PROC8b:
No other specific measures identified [EI20]

Bulk transfers [CS14] (closed systems) [CS107] PROC8b:
No other specific measures identified [EI20]

Drum and small package filling [CS6] PROC9:
No other specific measures identified [EI20]

Laboratory activities [CS36] PROC15:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 43

Frequency and duration of use
Emission days (days/year): 20

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.001
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
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

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 6.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 540000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Formulation & (re)packing of substances and mixtures

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC2: Formulation of preparations
Specific Environmental Release Category: ESVOC 2.2.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:
Formulation, packing, and re-packing of the substance and its mixtures in batch or continuous operations, including storage, material transfers, mixing, tabletting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:
Handle substance within a closed system [E47]

Material storage [CS67] PROC1:
Store substance within a closed system [E84]

Material storage [CS67] PROC2:
Store substance within a closed system [E84]

Process sampling [CS2] PROC3:
No other specific measures identified [EI20]

Batch processes at elevated temperatures [CS136] Operation is carried out at elevated temperature (> than 20 °C above ambient temperature) [OC7] PROC3:
No other specific measures identified [EI20]

General exposures (open systems) [CS16] PROC4:
No other specific measures identified [EI20]

Mixing operations (open systems) [CS30] PROC5:
No other specific measures identified [EI20]

Manual [CS34] transfer from/pouring from containers [CS22] PROC8a:
No other specific measures identified [EI20]

Equipment cleaning and maintenance [CS39] PROC8a:
No other specific measures identified [EI20]

Bulk transfers [CS14] PROC8b:
No other specific measures identified [EI20]

Drum/batch transfers [CS8] PROC8b:
No other specific measures identified [EI20]

Drum and small package filling [CS6] PROC9:
No other specific measures identified [EI20]

Production or preparation of articles by tabletting, compression, extrusion or pelletisation [CS100] PROC14:
No other specific measures identified [EI20]

Laboratory activities [CS36] PROC15:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 1500

Frequency and duration of use
Emission days (days/year): 100

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (after typical onsite RMMs, consistent with EU Solvent Emissions Directive requirements): 0.025
Release fraction to wastewater from process (initial release prior to RMM): 0.0002
Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
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 >=(%): 0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 99000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal

efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use in Cleaning Agents (industrial use as a component of cleaning products)

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: ESVOC 4.4a.v1

Contributing Process Categories [PROC]:
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC7: Industrial spraying
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing of adhesive and other coating
PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:
Covers the use as a component of cleaning products including transfers from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material storage [CS67] PROC1:
No other specific measures identified [EI20]

Automated process with (semi) closed systems [CS93]. Use in contained systems [CS38] PROC2:
No other specific measures identified [EI20]

Application of cleaning products in closed systems [CS101] PROC2:
No other specific measures identified [EI20]

Automated process with (semi) closed systems [CS93]. Drum/batch transfers [CS8] Use in contained systems [CS38] PROC3:
No other specific measures identified [EI20]

Use in contained batch processes [CS37] PROC4:
No other specific measures identified [EI20]

Cleaning with high pressure washers [CS44] PROC7:
No other specific measures identified [EI20]

Bulk transfers [CS14] PROC8a:
No other specific measures identified [EI20]

Filling/preparation of equipment from drums or containers [CS45] PROC8b:
No other specific measures identified [EI20]

Cleaning with low-pressure washers [CS42] PROC10:
No other specific measures identified [EI20]

Manual [CS34] surfaces [CS48] cleaning [CS47] PROC10:
No other specific measures identified [EI20]

Degreasing small objects in cleaning station [CS41] PROC13:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 50

Frequency and duration of use
Emission days (days/year): 20

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 1.0
Release fraction to wastewater from process (initial release prior to RMM): 0.000003
Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%): 70
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

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 740000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use as a fuel (industrial use)

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC7: Industrial use of substances in closed systems
Specific Environmental Release Category: ESVOC 7.12a.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
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
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Scope of processes and activities covered by the Exposure Scenario:
Covers the use as a fuel (or fuel additive and additive components) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] Use in contained batch processes [CS37] PROC1:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] Use in contained batch processes [CS37] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] Use in contained batch processes [CS37] PROC3:

No other specific measures identified [EI20]

General exposures (closed systems) [CS15] PROC1:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:
Handle substance within a closed system [E47]

Material storage [CS67] PROC1:
Store substance within a closed system [E84]

Material storage [CS67] PROC2:
Store substance within a closed system [E84]

Equipment cleaning and maintenance [CS39] PROC8a:
No other specific measures identified [EI20]

Bulk transfers [CS14] PROC8b:
No other specific measures identified [EI20]

Drum/batch transfers [CS8] PROC8b:
No other specific measures identified [EI20]

Use as fuel [GEST12_I] (closed systems) [CS107] PROC16:
Handle substance within a closed system [E47]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 230

Frequency and duration of use
Emission days (days/year): 20

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.05
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
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 >=(%): 0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site

Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 2000000
Assumed domestic sewage treatment plant flow (m³/day): 2000

Conditions and measures related to external treatment of waste for disposal
Combustion emissions limited by required exhaust emission controls [ETW1]. Combustion emissions considered in regional exposure assessment [ETW2].

Conditions and measures related to external recovery of waste
This substance is consumed during use and no waste of the substance is generated [ERW3]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use in laboratories (industrial use)

Sector of use:
SU3: Industrial uses: Uses of substances as such or in mixtures at industrial sites

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC2: Formulation of preparation
ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Specific Environmental Release Category: not applicable

Contributing Process Categories [PROC]:
PROC10: Roller application or brushing of adhesive and other coating
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:
Use of the substance within laboratory settings, including material transfers and equipment cleaning

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Cleaning [CS47] PROC10:
No other specific measures identified [EI20]

Laboratory activities [CS36] PROC15:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 100

Frequency and duration of use
Emission days (days/year): 20

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.025
Release fraction to wastewater from process (initial release prior to RMM): 0.02
Release fraction to soil from process (initial release prior to RMM): 0.0001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
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 >=(%): 62.5
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 990
Assumed domestic sewage treatment plant flow (m³/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3].

Section 1 Exposure scenario title

Title:
Use in cleaning agents (professional application)

Sector of use:
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category: 8.4b.v.1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC3: Use in closed batch process (synthesis or formulation)
PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC10: Roller application or brushing of adhesive and other coating
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Scope of processes and activities covered by the Exposure Scenario:
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand)

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material storage [CS67] PROC1:
No other specific measures identified [EI20]

Automated process with (semi) closed system [CS93] Use in contained system [CS38] PROC2:
No other specific measures identified [EI20]

Automated process with (semi) closed system [CS93] Drum/batch transfers [CS8] Used in contained systems [CS38] PROC3:
No other specific measures identified [EI20]

Semi Automated process (e.g.: Semi automatic application of floor care and maintenance products) [CS76] PROC4:
No other specific measures identified [EI20]

Application of cleaning products in closed systems [CS101] Outdoor [OC9] PROC4:
No other specific measures identified [EI20]

Cleaning of medical devices [CS74] PROC4:
No other specific measures identified [EI20]

Filling / preparation of equipment from drums or containers. [CS45] PROC8a:
No other specific measures identified [EI20]

Filling / preparation of equipment from drums or containers. [CS45] PROC8b:
No other specific measures identified [EI20]

Manual [CS34] Surfaces [CS48] Cleaning [CS47] Spraying [CS10] PROC10:
No other specific measures identified [EI20]

Ad hoc manual application via trigger sprays, dipping, etc. [CS27] Rolling, Brushing [CS51] PROC10:
No other specific measures identified [EI20]

Ad hoc manual application via trigger sprays, dipping, etc. [CS27] Rolling, Brushing [CS51] PROC10:
No other specific measures identified [EI20]

Cleaning with high-pressure washers [CS44] Spraying [CS10] Indoor [OC8] PROC11:
No other specific measures identified [EI20]

Cleaning with high-pressure washers [CS44] Spraying [CS10] Outdoor [OC9] PROC11:
No other specific measures identified [EI20]

Manual [CS34] Surfaces [CS48] Cleaning [CS47] Dipping, immersion and pouring [CS4] PROC13:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 0.0014

Frequency and duration of use
Emission days (days/year): 365

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.02
Release fraction to wastewater from process (initial release prior to RMM): 0.000001
Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%): N/A
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

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 100
Assumed domestic sewage treatment plant flow (m³/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use in agrochemicals

Sector of use:
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
Specific Environmental Release Category: ESVOC 8.11a.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
PROC4: Use in batch and other process (syn-thesis) where opportunity for exposure arises
PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring

Scope of processes and acitvities covered by the Exposure Scenario:
Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Material storage [CS67] PROC1:
No other specific measures identified [EI20]

Material storage [CS67] PROC2:
Store substance within a closed system [E84]

Mixing and blending [CS23] PROC4:
No other specific measures identified [EI20]

Disposal of wastes [CS28] PROC8a:
No other specific measures identified [EI20]

Clean-down and maintenance of equipment [CS26] PROC8a:
No other specific measures identified [EI20]

Transfer from/pouring from containers [CS22] PROC8b:
No other specific measures identified [EI20]

Spraying/fogging by manual application [CS24] PROC11:
No other specific measures identified [EI20]

Spraying/fogging by machine application [CS25] PROC11:
No other specific measures identified [EI20]

Ad hoc manual application via trigger sprays, dipping, etc. [CS27] PROC13:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 0.16

Frequency and duration of use
Emission days (days/year): 365

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.9
Release fraction to wastewater from process (initial release prior to RMM): 0.01
Release fraction to soil from process (initial release prior to RMM): 0.09

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%): N/A
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

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 2000
Assumed domestic sewage treatment plant flow (m^3/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use as a Fuel

Sector of use:
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems
Specific Environmental Release Category: ESVOC 9.12b.v1

Contributing Process Categories [PROC]:
PROC1: Use in closed process, no likelihood of exposure
PROC2: Use in closed, continuous process with occasional controlled exposure
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
PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
PROC16: Using material as fuel sources, limited exposure to unburned product to be expected

Scope of processes and activities covered by the Exposure Scenario:
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

General exposures (closed systems) [CS15] PROC1:
Handle substance within a closed system [E47]

Material storage [CS67] PROC1:

Store substance within a closed system [E84]

General exposures (closed systems) [CS15] PROC2:
Handle substance within a closed system [E47]

General exposures (closed systems) [CS15] PROC3:
No other specific measures identified [EI20]

Equipment cleaning and maintenance [CS39] PROC8a:
No other specific measures identified [EI20]

Bulk transfers [CS14] PROC8b:
Handle substance within a closed system [E47] Clear transfer lines prior to de-coupling [E39]

Drum/batch transfers [CS8] PROC8b:
No other specific measures identified [EI20]

Refueling [CS107] PROC8b:
No other specific measures identified [EI20]

Use as a fuel [GEST12] (closed systems) [CS107] PROC16:
Handle substance within a closed system [E47]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 0.00027

Frequency and duration of use
Emission days (days/year): 365

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.01
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Release fraction to soil from process (initial release prior to RMM): 0.00001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a]. No wastewater treatment required [TCR6].
Treat air emission to provide a typical removal efficiency of (%): N/A
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

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment

removal (kg/day): 140
Assumed domestic sewage treatment plant flow (m³/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use in Laboratories

Sector of use:
SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC8a: Wide dispersive indoor use of processing aids in open systems
Specific Environmental Release Category: ESVOC 8.17.v1

Contributing Process Categories [PROC]:
PROC10: Roller application or brushing
PROC15: Use as laboratory reagent

Scope of processes and activities covered by the Exposure Scenario:
Use of small quantities within laboratory settings, including material transfers and equipment cleaning.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of worker exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa at STP [OC5]

Concentration of substance in product:
Covers percentage substance in the product up to 100 % (unless stated differently) [G13]

Frequency and duration of use/exposure:
Covers daily exposures up to 8 hours (unless stated differently) [G2]

Other operational conditions affecting exposure:
Assumes use at not more than 20 °C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]

Contributing scenarios and risk management measures of worker exposure

Cleaning [CS47] PROC10:
No other specific measures identified [EI20]

Laboratory activities [CS36] PROC15:
No other specific measures identified [EI20]

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used
Maximum daily site tonnage (kg/day): 0.0075

Frequency and duration of use
Emission days (days/year): 365

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.5
Release fraction to wastewater from process (initial release prior to RMM): 0.5
Release fraction to soil from process (initial release prior to RMM): 0

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater sediment [TCR1b]. No wastewater treatment required [TCR6].
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 >=(%): 0
If discharging to domestic sewage treatment plant, provide the required onsite wastewater removal efficiency of >=(%): 0

Organisation measures to prevent/limit release from site
Prevent discharge of undissolved substance to or recover from wastewater [OMS1] Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Total efficiency of removal from wastewater after onsite and offsite (domestic treatment plant) RMMs (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 39
Assumed domestic sewage treatment plant flow (m³/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [G22].

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels [G23]. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1]. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination [DSU2]. Required removal efficiency for air can be achieved using onsite technologies, either alone or in combination [DSU3]. Further details on scaling and control technologies are provided in SpERC factsheet (http://cefic.org/en/reach-for-industries-libraries.html).

Section 1 Exposure scenario title

Title:
Use as a fuel

Sector of use:
SU21: Consumer uses: Private households (= general public = consumers)

Subsequent service life relevant for that use:
Under nitrogen atmosphere no time limit

Contributing Environmental Release Categories [ERC]:
ERC9a: Wide dispersive indoor use of substances in closed systems.
ERC9b: Wide dispersive outdoor use of substances in closed systems.
Specific Environmental Release Category: ESVOC 9.12c.v1

Contributing Product Category [PC]:
PC13: Fuels

Scope of processes and activities covered by the Exposure Scenario:
Covers consumer uses in liquid fuels.

Section 2 Operational conditions and risk management measures

Section 2.1 Control of consumer exposure

Operational conditions of use

Physical form of product and vapour pressure:
Liquid, vapour pressure 0.5 – 10 kPa

Concentration of substance in product:
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]

Amounts used:
Unless otherwise stated, covers use amounts up to37500g [ConsOC2];covers skin contact area up to 420cm2 [ConsOC5]

Frequency and duration of use/exposure:
Unless otherwise stated, covers use frequently up to 365 days per year [ConsOC3]; Unless otherwise stated, covers use frequency up to 1 times per day [ConsOC4]; covers exposure up to 2 hours per event [ConsOC14]

Other operational conditions affecting exposure:
Unless otherwise stated assumes use at ambient temperatures [ConsOC15]; assumes use in a 20 m^3 room [ConsOC11]; assumes use with typical ventilation [ConsOC8]

Contributing scenarios and risk management measures of consumer exposure

PC13:Fuels—Liquid—subcategories added: Automotive Refuelling
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 0.05hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Scooter Refuelling
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 3750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Garden Equipment - Use
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m3 [ConsOC11]; for each use event, covers exposure up to 2.00hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Garden Equipment - Refuelling
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 420.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 750g [ConsOC2]; covers use in a one car garage (34m3) under typical ventilation [ConsOC10]; covers use in room size of 34m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Home space heater fuel
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 365 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 3000g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.03hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

PC13:Fuels—Liquid—subcategories added: Lamp oil
OC
Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year [ConsOC3]; covers use up to 1 time/on day of use [ConsOC4]; covers skin contact area up to 210.00 cm2 [ConsOC5]; for each use event, covers use amounts up to 100g [ConsOC2]; covers use under typical household ventilation [ConsOC8]; covers use in room size of 20m3 [ConsOC11]; for each use event, covers exposure up to 0.01hr/event [ConsOC14];
RMM
No specific RMMs identified beyond those OCs stated

Section 2.2 Control of environmental exposure

Product characteristics:
Substance is complex UVCB [PrC3]. Predominantly hydrophobic [PrC4a].

Amounts used

Maximum daily site tonnage (kg/day): 0.00027

Frequency and duration of use
Emission days (days/year): 365

Environmental factors not influenced by risk management
Local freshwater dilution factor: 10
Local marine water dilution factor: 100

Other given operational conditions affecting environmental exposure
Release fraction to air from process (initial release prior to RMM): 0.01
Release fraction to wastewater from process (initial release prior to RMM): 0.00001
Release fraction to soil from process (initial release prior to RMM): 0.00001

Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment (%): 96.2
Maximum allowable site tonnage (M_{Safe}) based on release following total wastewater treatment removal (kg/day): 4.5
Assumed domestic sewage treatment plant flow (m^3/day): 2000

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 [ETW3]

Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]

Section 3 Exposure estimation

Health
The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Environment
The Hydrocarbon Block Method has been used to calculate environmental exposure with the Petrorisk model [EE2].

Section 4 Guidance to check compliance with the Exposure Scenario

Health
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22]
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [G23] Available hazard data do not enable the derivation of a DNEL for dermal irritant effects [G32] Risk management measures are based on qualitative risk characterization [G37]

Environment
Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures [DSU1] Further details on scaling and control technologies are provided in factsheet (http://cefic.org/en/reach-for-industries-libraries.html) [DSU4]