



SAFETY DATA SHEET (1907/2006)

R0718323

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TETRAHYDROFURAN

ANNEX

Exposure Scenario 1

Section 1	Exposure Scenario Title
Title	Manufacture of THF and Other Substances; CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU8, SU9)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15
	Environmental Release Categories: ERC1
Processes, tasks, activities covered	Manufacture of THF or use as an intermediate or process chemical or extraction agent (e.g. to manufacture/synthesize pharmaceuticals). Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Section 2	Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	<i>Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.</i>
General exposures (closed systems) [CS15].Continuous process [CS54].No sampling [CS57].	No specific measures identified [E118]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].Continuous process [CS54].With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].Batch process [CS55].	Ensure material transfers are under containment or extract ventilation [E66]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374

	[PPE15]}.	
Process sampling [CS2].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Internal [CS59].Bulk transfers [CS14].	Provide extract ventilation to points where emissions occur [E54]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Equipment maintenance [CS5].	Limit the substance content in the product to 1 % [OC16]. {Clear transfer lines prior to de-coupling [E39]}. {Flush and drain and down system prior to equipment break-in or maintenance [E65]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Bulk transfers [CS14].Transport [CS58].Dedicated facility [CS81].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Laboratory activities [CS36].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}. {Avoid splashing [C&H15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	liquid
	Water solubility	> 10 g/L (miscible)
	Vapour pressure	17.0 kPa at 25 °C
	biodegradability	inherently biodegradable
	Kow	18.2
Amounts used	Total (production and import)	140,000 tonnes/year
	Site tonnage	80,000 tonnes/year (A6)
	Regional	80,000 tonnes/year (A2)
Frequency and duration of use	Frequency	Continuous release (FD 2)
	Duration	300 (FD 4)
Environmental factors not influenced by risk management	Freshwater dilution factor	10 (EF1)
	Marine dilution factor	100 (EF2)
	Receiving water flow rate	18,000 m ³ /day (EF3)
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	2.0 x 10 ⁴ m ³ /day
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	

Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 2

Section 1	Exposure Scenario Title
Title	Formulation & Packing of Preparations and Mixtures Containing THF; CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Formulation, packing and re-packing of THF and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, maintenance and associated laboratory activities.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
General exposures (closed systems) [CS15].Continuous process [CS54].No sampling [CS57].	No specific measures identified [E118]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].Continuous process [CS54].With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15].Batch process [CS55].	Ensure material transfers are under containment or extract ventilation [E66]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.

Process sampling [CS2].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Internal [CS59].Bulk transfers [CS14].	Provide extract ventilation to points where emissions occur [E54]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Mixing in containers [CS23].Batch process [CS55].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Equipment maintenance [CS5].	Limit the substance content in the product to 1 % [OC16]. {Clear transfer lines prior to de-coupling [E39]}. {Flush and drain and down system prior to equipment break-in or maintenance [E65]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Bulk transfers [CS14].Transport [CS58].Dedicated facility [CS81].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Drum and small package filling [CS6].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Production of preparation or articles by tableting, compression, extrusion or pelletisation [CS71].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Laboratory activities [CS36].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}. {Avoid splashing [C&H15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	

Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure <i>Scenario</i>
Health	Confirm that RMMs and OCs are as described.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 3

Section 1	Exposure Scenario Title
Title	Use of THF in Polymer Production; CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU10)
	Process Categories: PROC1, PROC2, PROC3, PROC5, PROC8a, PROC8b, PROC9
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the industrial manufacture of polymers using THF in continuous and batch processes, include sparging, discharging, and reactor maintenance and immediate polymer product formation (i.e. compounding, pelletisation, product off-gassing).
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]

Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.	
General exposures (closed systems) [CS15].Continuous process [CS54].No sampling [CS57].	No specific measures identified [EI18]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Polymerisation (bulk and batch) [CS65].Continuous process [CS54].With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Polymerisation (bulk and batch) [CS65].Batch process [CS55].With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E76]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Batch process [CS55].With sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E76]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Mixing and blending [CS23].Batch process [CS55].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Equipment maintenance [CS5].	Limit the substance content in the product to 1 % [OC16]. {Clear transfer lines prior to de-coupling [E39]}. {Flush and drain and down system prior to equipment break-in or maintenance [E65]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Bulk transfers [CS14].Transport [CS58].Dedicated facility [CS81].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
transport [CS58].with sample collection [CS56].	Ensure material transfers are under containment or extract ventilation [E66]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Drum and small package filling [CS6].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	

Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure Scenario
Health	Confirm that RMMs and OCs are as described.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 4

Section 1	Exposure Scenario Title
Title	Use of THF in Cleaning Agents (Industrial); CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the industrial use of THF as a component of cleaning products including transfer 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
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>

Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].	
	Assumes a good basic standard of occupational hygiene has been implemented [G1]	
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.	
Bulk transfers [CS14].	Ensure material transfers are under containment or extract ventilation [E66].{Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Automated process with (semi) closed systems. [CS93]. Use in contained systems [CS38].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Automated process with (semi) closed systems. [CS93]. Drum/batch transfers [CS8]. Use in contained systems [CS38].	Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Application of cleaning products in closed systems [CS101].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81].	Ensure material transfers are under containment or extract ventilation [E66]{Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Use in contained batch processes [CS37]. Treatment by heating [CS129].	Provide extract ventilation to points where emissions occur [E54]{Wear suitable gloves tested to EN374 [PPE15]}.	
Degreasing small objects in cleaning station [CS41].	Provide extract ventilation to points where emissions occur [E54]{Clear spills immediately [C&H13]}. {Wear suitable gloves tested to EN374 [PPE15]}	
Cleaning with low-pressure washers [CS42].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Cleaning with high pressure washers [CS44].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. no spraying [CS60].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.	
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	

Exposure Scenario 5

Section 1	Exposure Scenario Title
Title	Use of THF in Coatings (Industrial); CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the industrial use of THF in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning and maintenance and associated laboratory activities.

Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15]. Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
General exposures (closed systems) [CS15].	{Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. with sample collection [CS56]. Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
Film formation - air drying [CS95].	Provide extract ventilation to points where emissions occur [E54]. {Avoid manual contact with wet work pieces [EI17]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Preparation of material for application [CS96]. Mixing operations (open systems) [CS30].	Provide extract ventilation to points where emissions occur [E54]. {Avoid manual contact with wet work pieces [EI17]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Spraying (automatic/robotic) [CS97].	Carry out in a vented booth provided with laminar airflow [E59]. {Wear suitable gloves tested to EN374 [PPE15]}.
Manual [CS34]. Spraying [CS10].	Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].
Material transfers [CS3].	Clear transfer lines prior to de-coupling [E39]. {Provide extract ventilation to points where emissions occur [E54]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Material transfers [CS3]. Dedicated facility [CS81].	Clear transfer lines prior to de-coupling [E39]. {Provide extract ventilation to points where emissions occur [E54]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Roller, spreader, flow application [CS98].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. {Wear suitable gloves tested to EN374 [PPE15]}.
Dipping, immersion and pouring [CS4].	Provide extract ventilation to points where emissions occur [E54]. Avoid manual contact with wet work pieces [EI17]. {Clear up spills immediately and dispose of waste safely [EI9]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]. {Avoid manual contact with wet work pieces [EI17]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer from/pouring from containers [CS22].	Ensure transfer points are supplied with extract ventilation [E73]. {Wear suitable gloves tested to EN374 [PPE15]}.

Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		

Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 6

Section 1	Exposure Scenario Title
Title	Use of THF in Functional Fluids - Corrosion Inhibitors (Industrial); CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC 8a, PROC 8b, PROC9
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the industrial use of THF as a functional fluid i.e. corrosion inhibitor in industrial equipment including maintenance and related material transfers
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other operational conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
Filling / preparation of equipment from drums or containers. [CS45]. manual filling of machines	Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures [CS1]. closed equipment	No specific measures identified [E118]. {Handle substance within a closed system [E47]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Mixing and blending [CS23]. Process sampling [CS2].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
Bulk transfers [CS14]. Transport [CS58]. Dedicated facility [CS81].	Provide extract ventilation to points where emissions occur [E54]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Machine [CS33]. Continuous process [CS54]. General exposures (open systems) [CS16]. operation of equipment containing functional fluids	Provide enhanced general ventilation by mechanical means [E48]. {Wear suitable gloves tested to EN374 [PPE15]}.

Operation and lubrication of high energy open equipment [CS17]. General exposures (open systems) [CS16].	Provide enhanced general ventilation by mechanical means [E48]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Drum and small package filling [CS6].	Ensure material transfers are under containment or extract ventilation [E76]. {Clear transfer lines prior to de-coupling [E39]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Operation and lubrication of high energy open equipment [CS17]. General exposures (open systems) [CS16]. Elevated temperature.	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	

Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 7

Section 1	Exposure Scenario Title
Title	Use of Small Quantities of THF within Laboratory Settings (Industrial); CAS: 109-99-9
Use Descriptor	Sector of Use: Industrial (SU3)
	Process Categories: PROC9, PROC10, PROC15
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the industrial use of THF within laboratory settings, including material transfers and equipment cleaning
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
Laboratory activities [CS36].Transfer from/pouring from containers [CS22].	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70]. {Wear suitable gloves tested to EN374 [PPE15]}.
Equipment cleaning and maintenance [CS39].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.
Laboratory activities [CS36].Pouring from small containers [CS9].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}. {Avoid splashing [C&H15]}.

Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.	

Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
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Exposure Scenario 8

Section 1	Exposure Scenario Title
Title	Use of THF in Cleaning Agents (Professional); CAS: 109-99-9
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the professional use of THF 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
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81].	Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Automated process with (semi) closed systems. [CS93]. Use in contained systems [CS38].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Automated process with (semi) closed systems. [CS93]. Drum/batch transfers [CS8]. Use in contained systems [CS38].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76].	Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].
Filling / preparation of equipment from drums or containers. [CS45]. Outdoor [OC9].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.

Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Dipping, immersion and pouring [CS4].	Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].	
Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. no spraying [CS60].	Limit the substance content in the product to 5 % [OC17]. Provide enhanced general ventilation by mechanical means [E48]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Cleaning with high pressure washers [CS44]. Spraying [CS10]. Indoor [OC8].	Limit the substance content in the product to 1 % [OC16]. Provide enhanced general ventilation by mechanical means [E48]. Wear suitable gloves tested to EN374 [PPE15].	
Cleaning with high pressure washers [CS44]. Spraying [CS10]. Outdoor [OC9].	Limit the substance content in the product to 1 % [OC16]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. Spraying [CS10].	Ensure doors and windows are opened [E72]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 25 % [OC18]. Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51].	Limit the substance content in the product to 25 % [OC18]. Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Wear suitable gloves tested to EN374 [PPE15].	
Application of cleaning products in closed systems [CS101]. Outdoor [OC9].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Cleaning of medical devices [CS74].	Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or	Air	<i>No specific measures required</i>

limit discharges, air emissions and releases to soil	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.	
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	

Exposure Scenario 9

Section 1	Exposure Scenario Title
Title	Use of THF in Coatings (Professional); CAS: 109-99-9
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the professional use of THF in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].
	Assumes a good basic standard of occupational hygiene has been implemented [G1]
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.
Filling / preparation of equipment from drums or containers. [CS45].	Handle substance within a closed system [E47]. Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
General exposures (closed systems) [CS15]. Use in contained systems [CS38].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.
Preparation of material for application [CS96]. Outdoor [OC9].	Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Use drum pumps or carefully pour from container [E64]}. {Clear up spills immediately and dispose of waste safely [E19]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Film formation - air drying [CS95]. Outdoor [OC9].	Limit the substance content in the product to 25 % [OC18]. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. {Wear suitable gloves tested to EN374 [PPE15]}.
Film formation - air drying [CS95]. Indoor [OC8].	Provide extract ventilation to points where emissions occur [E54]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Avoid manual contact with wet work pieces [E117]}. {Wear suitable gloves tested to EN374 [PPE15]}.
Preparation of material for application [CS96]. Indoor [OC8].	Limit the substance content in the product to 25 % [OC18]. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Preparation of material for application [CS96]. Outdoor [OC9].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Material transfers [CS3]. Drum/batch transfers [CS8].	Limit the substance content in the product to 25 % [OC18]. Provide enhanced general ventilation by mechanical means [E48]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Limit the substance content in the product to 25 % [OC18]. Avoid carrying out operation for more than 1 hour [OC11]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable

	gloves tested to EN374 [PPE15]}.	
Material transfers [CS3]. Drum/batch transfers [CS8]. Dedicated facility [CS81].	Ensure transfer points are supplied with extract ventilation [E73]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Roller, spreader, flow application [CS98]. Indoor [OC8].	Limit the substance in product to 20 % [OC21]. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Wear suitable gloves tested to EN374 [PPE15].	
Roller, spreader, flow application [CS98]. Outdoor [OC9].	Limit the substance in product to 20 % [OC21]. Ensure operation is undertaken outdoors [E69]. Wear suitable gloves tested to EN374 [PPE15].	
Manual [CS34]. Spraying [CS10]. Indoor [OC8].	Carry out in a vented booth [E57]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Manual [CS34]. Spraying [CS10]. Outdoor [OC9].	Avoid carrying out operation for more than 4 hours [OC12]. Wear a full face respirator conforming to EN140 with Type A filter or better [PPE24]. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training [PPE16].	
Dipping, immersion and pouring [CS4]. Indoor [OC8].	Limit the substance content in the product to 25 % [OC18]. Provide extract ventilation to points where emissions occur [E54]. Avoid manual contact with wet work pieces [E117]. {Clear up spills immediately and dispose of waste safely [E19]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Dipping, immersion and pouring [CS4]. Outdoor [OC9].	Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. Avoid manual contact with wet work pieces [E117]. {Clear up spills immediately and dispose of waste safely [E19]}. {Wear suitable gloves tested to EN374 [PPE15]}.	
Laboratory activities [CS36].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Hand application - fingerpaints, pastels, adhesives [CS72]. Indoor [OC8].	Limit the substance in product to 20 % [OC21]. Provide a good standard of general or controlled ventilation (5 to 10 air changes per hour) [E40]. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training [PPE17].	
Hand application - fingerpaints, pastels, adhesives [CS72]. Outdoor [OC9].	Limit the substance in product to 20 % [OC21]. Wear chemically resistant gloves (tested to EN374) in combination with specific activity training [PPE17].	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	

Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>
Other environmental control measures additional to above	<i>No specific measures required</i>
Section 3	Exposure Estimation
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure Scenario
Health	Confirm that RMMs and OCs are as described.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 10

Section 1	Exposure Scenario Title
Title	Use of THF in Functional Fluids - Corrosion Inhibitors (Professional); CAS: 109-99-9
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC1, PROC2, PROC3, PROC4, PROC 8a, PROC9, PROC20
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	The professional use of THF as functional fluid i.e. corrosion inhibitor in professional equipment including maintenance and related material transfers.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of worker exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C

Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].	
Amounts used	<i>Not applicable</i>	
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]	
Human factors not influenced by risk management	<i>Not applicable</i>	
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].	
	Assumes a good basic standard of occupational hygiene has been implemented [G1]	
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.	
Filling / preparation of equipment from drums or containers. [CS45].manual filling of machines	Limit the substance content in the product to 25 % [OC18]. Provide enhanced general ventilation by mechanical means [E48].Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. { Wear suitable gloves tested to EN374 [PPE15]}.	
Disposal of wastes [CS28]. Material transfers [CS3]. Drum/batch transfers [CS8].	Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Drum and small package filling [CS6].	Ensure transfer points are supplied with extract ventilation [E73]. Avoid carrying out operation for more than 4 hours [OC12]. , or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.	
General exposures (closed systems) [CS15].	No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Mixing in containers [CS23]. Process sampling [CS2].	Ensure material transfers are under containment or extract ventilation [E66]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Machine [CS33].Continuous process [CS54].General exposures (open systems) [CS16].operation of equipment containing functional fluids	Provide enhanced general ventilation by mechanical means [E48].{Wear suitable gloves tested to EN374 [PPE15]}.	
Operation and lubrication of high energy open equipment [CS17].General exposures (open systems) [CS16].	Limit the substance content in the product to 25 % [OC18]. Provide enhanced general ventilation by mechanical means [E48].Wear suitable gloves tested to EN374 [PPE15].	
Operation and lubrication of high energy open equipment [CS17].General exposures (open systems) [CS16].Elevated temperature.	Limit the substance content in the product to 25 % [OC18]. Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}.	
Operation and lubrication of high energy open equipment [CS17].	Limit the substance content in the product to 25 % [OC18]. Provide enhanced general ventilation by mechanical means [E48].{Wear suitable gloves tested to EN374 [PPE15]}.	
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or	Air	<i>No specific measures required</i>

limit discharges, air emissions and releases to soil	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	
Section 3	Exposure Estimation	
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 4	Guidance to check compliance with the Exposure Scenario	
Health	Confirm that RMMs and OCs are as described.	
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment	
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.		
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.	
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.	

Exposure Scenario 11

Section 1	Exposure Scenario Title
Title	Use of Small Quantities of THF within Laboratory Settings (Professional); CAS: 109-99-9
Use Descriptor	Sector of Use: Professional (SU22)
	Process Categories: PROC9, PROC10, PROC15
	Environmental Release Categories: <i>not applicable</i>
Processes, tasks, activities covered	Covers the professional use of THF in small quantities within laboratory settings, including material transfers and equipment cleaning
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	

Section 2.1		Control of worker exposure	
Product characteristics			
Physical form of product	Liquid		
Vapour pressure	170 hPa at 20°C		
Concentration of substance in product	Covers percentage substance in the product up to 100 % [G13].		
Amounts used	<i>Not applicable</i>		
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]		
Human factors not influenced by risk management	<i>Not applicable</i>		
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20 deg above ambient temperature [G15].		
	Assumes a good basic standard of occupational hygiene has been implemented [G1]		
Risk Management Measures	Phrases between brackets are good practice advice only, beyond REACH Chemical Safety Assessment.		
Laboratory activities [CS36].Transfer from/pouring from containers [CS22].	Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70]. Avoid carrying out operation for more than 1 hour [OC11]., or: [G9]. Wear a respirator conforming to EN140 with Type A filter or better [PPE22]. {Wear suitable gloves tested to EN374 [PPE15]}.		
Equipment cleaning and maintenance [CS39].	Carry out in a vented booth [E57]. {Wear suitable gloves tested to EN374 [PPE15]}.		
Laboratory activities [CS36].Pouring from small containers [CS9].	Provide extract ventilation to points where emissions occur [E54]. {Wear suitable gloves tested to EN374 [PPE15]}. {Avoid splashing [C&H15]}.		
Section 2.2		Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>	
	Water solubility	<i>Not applicable</i>	
	Vapour pressure	<i>Not applicable</i>	
	biodegradability	<i>Not applicable</i>	
	Kow	<i>Not applicable</i>	
Amounts used	Total (production and import)	<i>Not applicable</i>	
	Site tonnage	<i>Not applicable</i>	
	Regional	<i>Not applicable</i>	
Frequency and duration of use	Frequency	<i>Not applicable</i>	
	Duration	<i>Not applicable</i>	
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>	
	Marine dilution factor	<i>Not applicable</i>	
	Receiving water flow rate	<i>Not applicable</i>	
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>	
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>		
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>	
	Water	<i>No specific measures required</i>	
	Soil	<i>No specific measures required</i>	
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>		
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>		
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>		
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>		
Other environmental control measures additional to above	<i>No specific measures required</i>		

Section 3	Exposure Estimation
Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure Scenario
Health	Confirm that RMMs and OCs are as described.
Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 5	Additional good practice advice beyond the REACH Chemical Safety Assessment
Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH.	
Control of Worker Exposure	Good practice RMM phrases are {indicated} and incorporated within the ES Section 2 or consolidated into the main sections of the SDS.
Control of environmental exposure	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 12

Section 1	Exposure Scenario Title
Title	Consumer Uses of THF in Cleaning Products; CAS: 109-99-9
Use Descriptor	Sector of Use: Consumer (SU21)
	Product Categories: PC35:Washing and cleaning products (including solvent based products)
	Environmental Release Categories: <i>not applicable</i>
Product categories covered	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of consumer exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers typically used concentrations only, unless otherwise stated.
Amounts used	Covers typically used amounts only, unless otherwise stated.
Frequency and duration of use	Covers typical frequency and duration of use only, unless otherwise stated.
Human factors not influenced by risk management	Not applicable

Other Operational Conditions affecting consumer exposure	Covers use by adults (unless stated). Covers intended use only.	
	Assumes instantaneous emission of the substance from the product into the air. Assumes that the vapour is homogeneously spread through the room.	
Section 2.1.1	Product categories	
Laundry and dish washing products	OC	Covers concentrations up to 0,01%. [ConsOC1]. For each use event, covers use amounts up to 50 g . [ConsOC2] Covers use up to 2 times/day. [ConsOC4] Covers skin contact area up to 2028 cm2 . [ConsOC5] Covers use under typical household ventilation. [ConsOC8] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 0,5 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 100%. [ConsRMM1]
Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)	OC	Covers concentrations up to 0,012%. [ConsOC1] For each use event, covers use amounts up to 60 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 858 cm2 . [ConsOC5] Covers use under typical household ventilation. [ConsOC8] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 0,33 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 100%. [ConsRMM1]
Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)	OC	For each use event, covers use amounts up to 30 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 480 cm2 . [ConsOC5] Covers use under typical household ventilation. [ConsOC8] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 0,16 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 15%. [ConsRMM1]
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	

Conditions and measures related to external recovery of waste	<i>No specific measures required</i>
Other environmental control measures additional to above	<i>No specific measures required</i>
Section 3	Exposure Estimation
3.1 Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
3.2 Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	Confirm that RMMs and OCs are as described.
4.2 Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.

Exposure Scenario 13

Section 1	Exposure Scenario Title
Title	Consumer Uses of products containing THF (glues PVC, glues universal, paint remover, lacquers, coatings); CAS: 109-99-9
Use Descriptor	Sector of Use: Consumer (SU21)
	Product Categories: PC1:Adhesives, sealants; PC9a: Coatings and paints, thinners, removers
	Environmental Release Categories: <i>not applicable</i>
Product categories covered	Covers general exposures to consumers arising from the use of household products sold as PVC primer, PVC cement, paintstripper, adhesives, lacquers.
Section 2	Operational conditions and risk management measures
Field for additional statements to explain scenario if required.	
Section 2.1	Control of consumer exposure
Product characteristics	
Physical form of product	Liquid
Vapour pressure	170 hPa at 20°C
Concentration of substance in product	Covers typically used concentrations only, unless otherwise stated.
Amounts used	Covers typically used amounts only, unless otherwise stated.
Frequency and duration of use	Covers typical frequency and duration of use only, unless otherwise stated.
Human factors not influenced by risk management	Not applicable
Other Operational Conditions affecting consumer exposure	Covers use by adults (unless stated). Covers intended use only.
	Assumes instantaneous emission of the substance from the product into the air. Assumes that the vapour is homogeneously spread through the room.
Section 2.1.1	Product categories

Glues DIY-use (PVC primer, PVC cement)	OC	For each use event, covers use amounts up to 9 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 428 cm2 . [ConsOC5] Covers use under typical household ventilation. [ConsOC8] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 4 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 80%. [ConsRMM1]
Glues DIY-use (universal glues)	OC	For each use event, covers use amounts up to 300 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 2 cm2 . [ConsOC5] Covers use under typical household ventilation. [ConsOC8] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 4 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 30%. [ConsRMM1]
Lacquers, coatings	OC	For each use event, covers use amounts up to 1000 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 960 cm2 . [ConsOC5] For each use event, assumes swallowed amount of 0 g. [ConsOC13] Covers exposure up to 2 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 20%. [ConsRMM1]
Removers (paint remover)	OC	For each use event, covers use amounts up to 1000 g . [ConsOC2] Covers use up to 1 times/day. [ConsOC4] Covers skin contact area up to 430 cm2 . [ConsOC5] For each use event, assumes swallowed amount of 0g. [ConsOC13] Covers exposure up to 1 hours/event. [ConsOC14]
	RMM	Avoid using at a product concentration greater than 20%. [ConsRMM1]
Section 2.2	Control of environmental exposure	
Product characteristics	Physical characteristics	<i>Not applicable</i>
	Water solubility	<i>Not applicable</i>
	Vapour pressure	<i>Not applicable</i>
	biodegradability	<i>Not applicable</i>
	Kow	<i>Not applicable</i>
Amounts used	Total (production and import)	<i>Not applicable</i>
	Site tonnage	<i>Not applicable</i>
	Regional	<i>Not applicable</i>
Frequency and duration of use	Frequency	<i>Not applicable</i>
	Duration	<i>Not applicable</i>
Environmental factors not influenced by risk management	Freshwater dilution factor	<i>Not applicable</i>
	Marine dilution factor	<i>Not applicable</i>
	Receiving water flow rate	<i>Not applicable</i>
Other operational conditions of use affecting environmental exposure	Minimum effluent discharge rate from STP	<i>Not applicable</i>
Technical conditions and measures at process level (source) to prevent release	<i>No specific measures required</i>	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Air	<i>No specific measures required</i>
	Water	<i>No specific measures required</i>
	Soil	<i>No specific measures required</i>
Organisation measures to prevent/limit release from site	<i>No specific measures required</i>	
Conditions and measures related to municipal sewage treatment plant	<i>No specific measures required</i>	
Conditions and measures related to external treatment of waste for disposal	<i>No specific measures required</i>	
Conditions and measures related to external recovery of waste	<i>No specific measures required</i>	
Other environmental control measures additional to above	<i>No specific measures required</i>	

Section 3	Exposure Estimation
3.1 Health	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
3.2 Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.
Section 4	Guidance to check compliance with the Exposure Scenario
4.1 Health	Confirm that RMMs and OCs are as described.
4.2 Environment	As a result of the hazard assessment carried out in accordance to article 14.3, the registrant concludes that the substance does not meet the criteria for classification as dangerous for the environment; therefore risk characterisations for environmental endpoints were not developed.