1. Exposure scenario 01

Manufacture

Industrial use

ES Ref.: 01 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC15 SU3 ERC1
Processes, tasks activities covered	Industrial use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC15)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC15: Use as laboratory reagent

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used		45000000 kg
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	General exposures CS54 - Continuous process	Clear spills immediately. E47 - Handle substance within a closed system. E55 - Drain down and flush system prior to equipment opening or maintenance.
	General exposures CS54 - Continuous process CS56 - with sample collection	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	General exposures CS37 - Use in contained batch processes CS56 - with sample collection	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS2 - Process sampling	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS14 - Bulk transfers internal	E39 - Clear transfer lines prior to de-coupling. E47 - Handle substance within a closed system. Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable

		eye protection.
	CS39 - Equipment cleaning and maintenance	E55 - Drain down and flush system prior to equipment opening or maintenance. E40 - Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS14 - Bulk transfers CS58 - transport	E47 - Handle substance within a closed system. E39 - Clear transfer lines prior to de-coupling. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS85 - Bulk product storage	E52 - Transfer via enclosed lines. E84 - Store substance within a closed system. Avoid dip sampling. E66 - Ensure material transfers are under containment or extract ventilation. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS36 - Laboratory activities	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Concentration of the Substance in Mixture/Article	G13 - Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	45000000 kg
	Daily amount per site	150000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

Risk Management Measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Do not flush into surface water or sanitary sewer system.
		87,4 % Effectiveness (of a measure)
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4 %
Conditions and measures related to external treatment of waste for disposal	Dispose of as hazardous waste in compliance with local and national regulations.	

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

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1. Exposure scenario 02

Formulation

Industrial use

ES Ref.: 02 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8A, PROC8B, PROC9, PROC14, PROC15 SU3 ERC2
Processes, tasks activities covered	Industrial use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8A, PROC8B, PROC9, PROC14, PROC15)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparationsand articles (multistage and/or significant contact)

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation

PROC15: Use as laboratory reagent

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	not applicable	
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	General exposures CS54 - Continuous process CS57 - no sampling	E47 - Handle substance within a closed system.
	General exposures CS54 - Continuous process CS56 - with sample collection	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	General exposures CS37 - Use in contained batch processes CS56 - with sample collection	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	General exposures CS16 - General exposures (open systems)	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS2 - Process sampling	E47 - Handle substance within a closed

		system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS14 - Bulk transfers	E47 - Handle substance within a closed system. E39 - Clear transfer lines prior to de-coupling. Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS30 - Mixing operations (open systems)	Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	Transfer from/pouring from containers CS34 - Manual	E64 - Use drum pumps or carefully pour from container. Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS39 - Equipment cleaning and maintenance	E55 - Drain down and flush system prior to equipment opening or maintenance. E40 - Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS8 - Drum/batch transfers	Avoid spillage when withdrawing pump. E64 - Use drum pumps or carefully pour from container. Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS6 - Drum and small package filling	Clear spills immediately. E51 - Fill containers/cans at dedicated filling points supplied with local extract ventilation. Put lids on containers immediately after use. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS85 - Bulk product storage	E52 - Transfer via enclosed lines. E84 - Store substance within a closed system. Avoid dip sampling. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS36 - Laboratory activities	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Concentration of the Substance in Mixture/Article	G13 - Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	25000000 kg
	Daily amount per site	85000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

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Risk Management Measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Do not flush into surface water or sanitary sewer system.
	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
		A leak prevention plan is needed to prevent low level continual releases.
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4
	Percentage removed from waste eater	87,4 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

1. Exposure scenario 03

Distribution

Industrial use

ES Ref.: 03 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC9, PROC15 SU3 ERC1, ERC2
Processes, tasks activities covered	Industrial use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC9, PROC15)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC15: Use as laboratory reagent

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	not applicable	
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	CS15 - General exposures (closed systems)	E47 - Handle substance within a closed system.
	CS15 - General exposures (closed systems)	E47 - Handle substance within a closed system. Use suitable eye protection.
	CS16 - General exposures (open systems)	E39 - Clear transfer lines prior to de-coupling. E76 - Ensure samples are obtained under containment or extract ventilation. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS2 - Process sampling	Avoid dip sampling. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS36 - Laboratory activities	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS14 - Bulk transfers CS107 - (closed systems)	E39 - Clear transfer lines prior to de-coupling.

		E66 - Ensure material transfers are under containment or extract ventilation. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS14 - Bulk transfers CS108 - (open systems)	E39 - Clear transfer lines prior to de-coupling. E66 - Ensure material transfers are under containment or extract ventilation. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS6 - Drum and small package filling	Clear spills immediately. E51 - Fill containers/cans at dedicated filling points supplied with local extract ventilation. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS39 - Equipment cleaning and maintenance	AP15 - Apply vessel entry procedures including use of forced supplied air. E55 - Drain down and flush system prior to equipment opening or maintenance. E52 - Transfer via enclosed lines. Retain drain downs in sealed storage pending disposal or for subsequent recycle. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	Storage	E52 - Transfer via enclosed lines. E84 - Store substance within a closed system. Avoid dip sampling. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	25000000 kg
	Daily amount per site	85000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

Risk Management Measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Do not flush into surface water or sanitary sewer system.
	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
		A leak prevention plan is needed to prevent low level continual releases.
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4
	Percentage removed from waste eater	87,4 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Disposal methods	Dispose of as hazardous waste in compliance

		with local and national regulations.

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

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1. Exposure scenario 04

Coatings

Industrial use

ES Ref.: 04 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8A, PROC8B, PROC9, PROC10, PROC13, PROC15 SU3 ERC4
Processes, tasks activities covered	Industrial use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8A, PROC8B, PROC9, PROC10, PROC13, PROC15)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparationsand articles (multistage and/or significant contact)

PROC7: Industrial spraying

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

PROC15: Use as laboratory reagent

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	not applicable	
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	CS15 - General exposures (closed systems)	E47 - Handle substance within a closed system.
	CS15 - General exposures (closed systems) CS66 - Intermediate polymer storage CS38 - Use in contained systems	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	Film formation - force drying (50-100°C). stoving (>100°C). UV/EB radiation curing	E47 - Handle substance within a closed system. E66 - Ensure material transfers are under containment or extract ventilation. PPE15 - Wear suitable gloves tested to

		EN374. Use suitable eye protection.
	CS29 - Mixing operations (closed systems) CS15 - General exposures (closed systems)	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS95 - Film formation - air drying	E54 - Provide extraction ventilation at points where emissions occur. Avoid manual contact with wet work pieces. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS96 - Preparation of material for application CS30 - Mixing operations (open systems)	Provide extract ventilation to points where emissions occur. Avoid manual contact with wet work pieces. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS97 - Spraying (automatic/robotic)	E60 - Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.
	CS34 - Manual CS10 - Spraying	E40 - Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). PPE22 - Wear a respirator conforming to EN140 with Type A filter or better. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.
	CS3 - Material transfers	E39 - Clear transfer lines prior to de-coupling. E54 - Provide extraction ventilation at points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS98 - Roller, spreader, flow application	Provide enhanced general ventilation by mechanical means. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS4 - Dipping, immersion and pouring	Avoid manual contact with wet work pieces. Provide enhanced general ventilation by mechanical means. Clear up spills immediately and dispose of waste safely. PPE15 - Wear suitable gloves tested to EN374.
	CS36 - Laboratory activities	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS3 - Material transfers CS8 - Drum/batch transfers CS22 - Transfer from/pouring from containers	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	14000000 kg
	Daily amount per site	47000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced	Local freshwater dilution factor:	10

by risk management	Local marine water dilution factor:	100

Risk Management Measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Do not flush into surface water or sanitary sewer system.
	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
		A leak prevention plan is needed to prevent low level continual releases.
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4
	Percentage removed from waste eater	87,4 %
Conditions and measures related to external treatment of waste for disposal	Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
	Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

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1. Exposure scenario 05

Coatings

Professional use

ES Ref.: 05 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8A, PROC8B, PROC10, PROC11, PROC13, PROC15, PROC19 SU22 ERC8a, ERC8d
Processes, tasks activities covered	Professional use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC5, PROC8A, PROC8B, PROC10, PROC11, PROC13, PROC15, PROC19)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of preparationsand articles (multistage and/or significant contact)

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

PROC15: Use as laboratory reagent

PROC19: Hand-mixing with intimate contact and only PPE available

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	not applicable	
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	CS15 - General exposures (closed systems)	E47 - Handle substance within a closed system.
	CS45 - Filling/ preparation of equipment from drums or containers.	E47 - Handle substance within a closed system. E64 - Use drum pumps or carefully pour from container. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS15 - General exposures (closed systems) CS38 - Use in contained systems	E47 - Handle substance within a closed system. PPE15 - Wear suitable gloves tested

		to EN374. Use suitable eye protection.
	CS96 - Preparation of material for application	Clear up spills immediately and dispose of waste safely. E64 - Use drum pumps or carefully pour from container. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS95 - Film formation - air drying OC9 - Outdoor	Avoid manual contact with wet work pieces. Provide enhanced general ventilation by mechanical means. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS95 - Film formation - air drying OC8 - Indoor	Avoid manual contact with wet work pieces. E40 - Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). Provide extract ventilation to points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS96 - Preparation of material for application OC8 - Indoor	E40 - Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour). PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS96 - Preparation of material for application OC9 - Outdoor	Avoid carrying out operation for more than 4 hours. or E69 - Ensure operation is undertaken outdoors. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS3 - Material transfers CS8 - Drum/batch transfers	E54 - Provide extraction ventilation at points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS3 - Material transfers CS8 - Drum/batch transfers	E64 - Use drum pumps or carefully pour from container. E54 - Provide extraction ventilation at points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS98 - Roller, spreader, flow application OC8 - Indoor	Provide enhanced general ventilation by mechanical means. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. PPE22 - Wear a respirator conforming to EN140 with Type A filter or better. Use suitable eye protection.
	CS98 - Roller, spreader, flow application OC9 - Outdoor	OC18 - Limit the substance content in the product to 25 %. E69 - Ensure operation is undertaken outdoors. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.
	CS34 - Manual CS10 - Spraying OC8 - Indoor	E57 - Carry out in a vented booth or extracted enclosure. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.
	CS34 - Manual CS10 - Spraying OC9 - Outdoor	OC18 - Limit the substance content in the product to 25 %. E69 - Ensure operation is undertaken outdoors. PPE22 - Wear a respirator conforming to EN140 with Type A filter or better. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.

	CS4 - Dipping, immersion and pouring OC8 - Indoor	Clear up spills immediately and dispose of waste safely. Avoid manual contact with wet work pieces. E54 - Provide extraction ventilation at points where emissions occur. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS4 - Dipping, immersion and pouring OC9 - Outdoor	Avoid manual contact with wet work pieces. Clear up spills immediately and dispose of waste safely. E69 - Ensure operation is undertaken outdoors. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.
	CS36 - Laboratory activities	PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS72 - Hand application - fingerpaints, pastels, adhesives OC8 - Indoor	Avoid carrying out operation for more than 1 hour. Ensure doors and windows are opened. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS72 - Hand application - fingerpaints, pastels, adhesives OC9 - Outdoor	Avoid carrying out operation for more than 1 hour. E69 - Ensure operation is undertaken outdoors. PPE16 - Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	4000000 kg
	Daily amount per site	14000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

Risk Management Measures

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	Water	Do not flush into surface water or sanitary sewer system.
	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
		A leak prevention plan is needed to prevent low level continual releases.
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

1. Exposure scenario 06

Coatings

Consumer use

ES Ref.: 06 ES Type: Consumer	

Use descriptors	PC9a SU21 ERC8a, ERC8d
Processes, tasks activities covered	Consumer use

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC9a)

PC9a:Coatings and paints, thinners, paint removers

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	Amount used per event	2,76 kg
Frequency and duration of use	Frequency of use::	4 days/year
Other given operational conditions affecting consumers exposure	Covers use in room size of 20 m3	

Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Application Route	Consumer use
	Consumer Measures	No other specific measures identified.

2.2 Contributing scenario controlling environmental exposure

ERC8a:Wide dispersive indoor use of processing aids in open systems

ERC8d:Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	3000000 kg
Frequency and duration of use	Continuous exposure	365 days/year

Risk Management Measures

Conditions and measures related to municipal sewage treatment plant	Percentage removed from waste eater	87 %

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

1. Exposure scenario 07

Use in Cleaning Agents

Professional use

ES Ref.: 07 ES Type: Worker	

Use descriptors	PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC10, PROC11, PROC13 SU22 ERC8a, ERC8d
Processes, tasks activities covered	Professional use

2. Operational conditions and risk management measures

2.1 Contributing scenario controlling worker exposure (PROC1, PROC2, PROC3, PROC4, PROC8A, PROC8B, PROC10, PROC11, PROC13)

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC8A: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8B: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	not applicable	
Frequency and duration of use	G2 - Covers daily exposures up to 8 hours (unless stated differently).	
Other given operational conditions affecting workers exposure	G15 - Assumes use at not more than 20°C above ambient temperature. G1 - Assumes a good basic standard of occupational hygiene is implemented.	

Risk Management Measures

Other risk management measures	CS45 - Filling/ preparation of equipment from drums or containers.	E1 - Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS93 - Automated process with (semi) closed systems. CS38 - Use in contained systems	No specific measures identified.
	CS76 - Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products)	E1 - Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.

	CS45 - Filling/ preparation of equipment from drums or containers.	Avoid carrying out operation for more than 4 hours. E69 - Ensure operation is undertaken outdoors. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS34 - Manual CS48 - Surfaces Cleaning CS4 - Dipping, immersion and pouring	E1 - Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS42 - Cleaning with low-pressure washers CS51 - Rolling, Brushing CS60 - no spraying	OC18 - Limit the substance content in the product to 25 %. E1 - Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS44 - Cleaning with high pressure washers OC8 - Indoor	OC17 - Limit the substance content in the product to 5 %. E1 - Provide a good standard of general ventilation. Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS44 - Cleaning with high pressure washers OC9 - Outdoor	OC17 - Limit the substance content in the product to 5 %. or E69 - Ensure operation is undertaken outdoors. PPE17 - Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Use suitable eye protection.
	CS34 - Manual CS48 - Surfaces Cleaning CS10 - Spraying	OC18 - Limit the substance content in the product to 25 %. Ensure doors and windows are opened. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS27 - Ad hoc manual application via trigger sprays, dipping, etc. CS51 - Rolling, Brushing	OC18 - Limit the substance content in the product to 25 %. Ensure doors and windows are opened. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.
	CS101 - Application of cleaning products in closed systems OC9 - Outdoor	E69 - Ensure operation is undertaken outdoors. PPE15 - Wear suitable gloves tested to EN374. Use suitable eye protection.

2.2 Contributing scenario controlling environmental exposure

ERC1:Manufacture of substances

Product characteristics

Viscosity, dynamic	3,3 mPa.s
	at 20°C.

Operational conditions

Amount used	Annual amount	3000000 kg
	Daily amount per site	10000 kg
Frequency and duration of use	Continuous exposure	300 days/year
Environmental factors not influenced by risk management	Local freshwater dilution factor:	10
	Local marine water dilution factor:	100

Risk Management Measures

Technical onsite conditions and measures to reduce or limit	Water	Do not flush into surface water or sanitary sewer system.

discharges, air emissions and releases to soil	Remarks	Site should have a spill plan to ensure that adequate safeguards are in place to minimize the impact of episodic releases.
		A leak prevention plan is needed to prevent low level continual releases.
	soil	Bund storage facilities to prevent soil and water pollution in the event of spillage.
Conditions and measures related to municipal sewage treatment plant	Effectiveness (of a measure)	87,4 %
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier

1. Exposure scenario 08

Use in Cleaning Agents

Consumer use

ES Ref.: 08 ES Type: Consumer	

Use descriptors	PC35 SU21 ERC8a, ERC8d
Processes, tasks activities covered	Consumer use

2. Operational conditions and risk management measures

2.1 Contributing scenario consumer end-use (PC35)

PC35:Washing and cleaning products (including solvent based products)

Product characteristics

Physical form	OC3 - Liquid, vapour pressure < 0.5 kPa
Vapour pressure	1,17 hPa

Operational conditions

Amount used	Amount used per event	0,003 kg
Frequency and duration of use	Application duration	10 minutes
	Frequency of use::	1 minutes/day
Other given operational conditions affecting consumers exposure	Covers use in room size of 20 m3	
	Ventilation rate per hour	0,6

Risk Management Measures

Conditions and measures related to personal protection, hygiene and health evaluation	Application Route	Consumer use
	Exposure routes	oral exposure
	Consumer Measures	No other specific measures identified.
	Application Route	Consumer use
	Exposure routes	inhalation exposure
	Consumer Measures	No other specific measures identified.

2.2 Contributing scenario controlling environmental exposure

ERC8a:Wide dispersive indoor use of processing aids in open systems

ERC8d:Wide dispersive outdoor use of processing aids in open systems

Product characteristics

Viscosity, dynamic	3,3 mPa.s at 20°C.

Operational conditions

Amount used	Annual amount	1000000 kg
Frequency and duration of use	Continuous exposure	365 days/year

Risk Management Measures

Conditions and measures related to	Effectiveness (of a measure)	87 %

municipal sewage treatment plant		

3. Exposure estimation and reference to its source

3.1. Health

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

3.2. Environment

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

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the ES

4.1. Health

Guidance - Health	not applicable

4.2. Environment

Guidance - Environment	For scaling see,Supplier