

SAFETY DATA SHEET


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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	 NYSWITCHO™ 3X
Product description	Insulating oil
Product type	Liquid.
MARPOL Annex 1	Oils

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

Identified uses	
 Distribution of substance - Industrial Formulation and (re)packing of substances and mixtures - Industrial Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers. - Industrial Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers. - Professional Lubrication at high energy conditions in metal working operations - Industrial Lubrication at high energy conditions in metal working operations - Professional	
Uses advised against	Reason
This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.	-

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer	Head office: Nynas AB P.O. Box 10700 SE-121 29 Stockholm SWEDEN +46 8 602 12 00 (Office hours 8 am - 4.30 pm (CET)) www.nynas.com
e-mail address of person responsible for this SDS	ProductHSE@nynas.com

<u>National contact</u>	NYNAS-TECHNOL Handels-GmbH Grieskai 16 A-8020 Graz AUSTRIA +43 316 73 46 00
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1.4 Emergency telephone number

Telephone number	+44 (0) 1235 239 670
Hours of operation	24 hour service

National advisory body/Poison Centre

 43 1 406 43 43 (Austrian Poison Control Centre)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Acute Tox. 4, H332

Skin Irrit. 2, H315

Asp. Tox. 1, H304

Aquatic Chronic 2, H411

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms



Signal word

Danger

Hazard statements

H332 - Harmful if inhaled.

H315 - Causes skin irritation.

H304 - May be fatal if swallowed and enters airways.

H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P280 - Wear protective gloves: 4 - 8 hours (breakthrough time): nitrile rubber.

P273 - Avoid release to the environment.

P261 - Avoid breathing vapour.

Response

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

Storage

P405 - Store locked up.

Disposal

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

Not applicable.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Mixture

Product/ingredient name	Identifiers	%	Classification	
			Regulation (EC) No. 1272/2008 [CLP]	Type
Distillates (petroleum), hydrotreated middle	REACH #: 01-2119489867-12 EC: 265-148-2 CAS: 64742-46-7 Index: 649-221-00-X	80 - 90	Acute Tox. 4, H332 Skin Irrit. 2, H315 Asp. Tox. 1, H304 Aquatic Chronic 2, H411	[1]
Distillates (petroleum), hydrotreated light naphthenic	REACH #: 01-2119480375-34 EC: 265-156-6 CAS: 64742-53-6 Index: 649-466-00-2	10 - 20	Asp. Tox. 1, H304	[1]
2,6-di-tert-butyl-p-cresol	REACH #: 01-2119555270-46 EC: 204-881-4 CAS: 128-37-0	<0.3	Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) See Section 16 for the full text of the H statements declared above.	[1] [2]

Annex I Nota L applies to the base oil(s) in this product. Nota L - The classification as a carcinogen need not apply if it can be shown that the substance contains less than 3 % DMSO extract as measured by IP 346.

Annex I Nota N applies to the base oil(s) in this product. Nota N - The classification as a carcinogen need not apply if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

[6] Additional disclosure due to company policy

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	Get medical attention. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If casualty is unconscious and: If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If necessary, call a poison center or physician. Maintain an open airway.
Skin contact	Wash with soap and water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Handle with care and dispose of in a safe manner. Seek medical attention if skin irritation, swelling or redness develops and persists. Accidental high pressure injection through the skin requires immediate medical attention. Do not wait for symptoms to develop.

SECTION 4: First aid measures

Ingestion	Always assume that aspiration has occurred. Do not induce vomiting. Can enter lungs and cause damage. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Seek professional medical attention or send the casualty to a hospital. Do not wait for symptoms to develop.
	Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.
	Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	Causes serious eye irritation.
Inhalation	Harmful if inhaled. Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
Skin contact	Causes skin irritation.
Ingestion	May be fatal if swallowed and enters airways.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Due to low viscosity there is a risk of aspiration if the product enters the lungs. Treat symptomatically.
Specific treatments	Always assume that aspiration has occurred.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use direct water jets on the burning product; they could cause splattering and spread the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	In a fire or if heated, a pressure increase will occur and the container may burst. This substance will float and can be reignited on surface water. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H ₂ S, SO _x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

5.3 Advice for firefighters

Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 5: Firefighting measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Avoid breathing vapour or mist. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Except in case of small spillages, the feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency. Stop leak if safe to do so. Avoid direct contact with the product. Stay upwind/keep distance from source. In case of large spillages, alert occupants in downwind areas.

Eliminate all ignition sources if safe to do so. Spillages of limited amounts of product, especially in the open air when vapours will be usually quickly dispersed, are dynamic situations, which will presumably limit the exposure to dangerous concentrations.

Note : recommended measures are based on the most likely spillage scenarios for this material; however, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions. For this reason, local experts should be consulted when necessary. Local regulations may also prescribe or limit actions to be taken.

For emergency responders

Small spillages: normal antistatic working clothes are usually adequate.

Large spillages: full body suit of chemically resistant and thermal resistant material should be used. Work gloves providing adequate chemical resistance, specifically to aromatic hydrocarbons. Note : gloves made of PVA are not water-resistant, and are not suitable for emergency use. Safety helmet, antistatic non-skid safety shoes or boots. Goggles and /or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection : A half or full-face respirator with filter(s) for organic vapours (and when applicable for H2S) a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

6.2 Environmental precautions

Water polluting material. Collect spillage. May be harmful to the environment if released in large quantities. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Prevent product from entering sewers, rivers or other bodies of water. If necessary dike the product with dry earth, sand or similar non-combustible materials. In case of soil contamination, remove contaminated soil and treat in accordance with local regulations.

In case of small spillages in closed waters (i.e. ports), contain product with floating barriers or other equipment. Collect spilled product by absorbing with specific floating absorbents.

If possible, large spillages in open waters should be contained with floating barriers or other mechanical means. If this is not possible, control the spreading of the spillage, and collect the product by skimming or other suitable mechanical means. The use of dispersants should be advised by an expert, and, if required, approved by local authorities.

6.3 Methods and material for containment and cleaning up

Small spill

Stop leak if without risk. Absorb spilled product with suitable non-combustible materials.

SECTION 6: Accidental release measures

Large spill	Large spillages may be cautiously covered with foam, if available, to limit vapour cloud formation. Do not use water jet. When inside buildings or confined spaces, ensure adequate ventilation. Transfer collected product and other contaminated materials to suitable containers for recovery or safe disposal. Approach the release from upwind. Contaminated absorbent material may pose the same hazard as the spilt product.
6.4 Reference to other sections	See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

General information	Obtain special instructions before use. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use and store only outdoors or in a well-ventilated area. Hazard of slipping on spilt product. Avoid release to the environment.
7.1 Precautions for safe handling	
Protective measures	Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Prevent the risk of slipping. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Take precautionary measures against static discharge. Avoid splash filling of bulk volumes when handling hot liquid product. Empty containers retain product residue and can be hazardous. Avoid release to the environment. Use only bottom loading of tankers, in compliance with national or local legislation. Nota : See Section 8 for information on appropriate personal protective equipment. See section 13 for waste disposal information.
Advice on general occupational hygiene	Ensure that proper housekeeping measures are in place. Contaminated materials should not be allowed to accumulate in the workplaces and should never be kept inside the pockets. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash hands thoroughly after handling. Change contaminated clothes at the end of working shift. See also Section 8 for additional information on hygiene measures.
7.2 Conditions for safe storage, including any incompatibilities	Storage area layout, tank design, equipment and operating procedures must comply with the relevant regional, national or local legislation. Storage installations should be designed with adequate bunds in case of leaks or spills. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Store separately from oxidising agents. Recommended materials for containers, or container linings use mild steel, stainless steel. Not suitable : Some synthetic materials may be unsuitable for containers or container linings depending on the material specification and intended use. Compatibility should be checked with the manufacturer. Keep only in the original container or in a suitable container for this kind of product. Keep container tightly closed and sealed until ready for use. Do not store in unlabelled containers. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Empty containers may contain harmful, flammable/combustible or explosive residue or vapours. Do not cut, grind, drill, weld, reuse or dispose of containers unless adequate precautions are taken against these hazards. Store locked up. Protect from sunlight.

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations	Not available.
Industrial sector specific solutions	Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Naphth - 2,6-diertiary Butyl-4-Methyl Phenol (BHT) (CAS; 128-37-0) OEL 2,6-diertiary Butyl-4-Methyl Phenol (BHT) (CAS; 128-37-0)	Regulation on Limit Values - MAC (Austria, 12/2011). TWA: 10 mg/m ³ 8 hours. [Air contaminant] Regulation on Limit Values - MAC (Austria, 12/2011). TWA: 10 mg/m ³ 8 hours.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Distillate (petroleum), hydrotreated middle	DNEL	Inhalation	5000 mg/m ³	Workers	Systemic
	DNEL	Long term Dermal	2,9 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	16 mg/m ³	Workers	Systemic
Distillate (petroleum), hydrotreated light naphthenic 2,6-Di-tert-butyl-p-cresol	DNEL	Long term Inhalation	5,4 mg/m ³	Workers	Local
	DNEL	Long term Inhalation	5,8 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	1,74 mg/m ³	Consumers	Systemic
	DMEL	Long term Dermal	8,3 mg/kg bw/day	Workers	Systemic
	DMEL	Long term Dermal	5 mg/kg bw/day	Consumers	Systemic

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
2,6-Di-tert-butyl-p-cresol	Soil	1,04 mg/kg wwt	Equilibrium Partitioning Assessment Factors
	Sewage Treatment Plant	100 mg/l	
	Sediment	1,29 mg/kg wwt	Equilibrium Partitioning Assessment Factors
	Secondary Poisoning	16,7 mg/kg	
	Marine water	0,4 µg/l	
Fresh water	4 µg/l	Assessment Factors	

SECTION 8: Exposure controls/personal protection

PNEC Summary Hydrocarbon Block Method (Petrorisk)

8.2 Exposure controls

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Mechanical ventilation and local exhaust will reduce exposure via the air. Use oil resistant material in construction of handling equipment. Store under recommended conditions and if heated, temperature control equipment should be used to avoid overheating.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location. Wash contaminated clothing before reuse.

Eye/face protection

Recommended: Safety glasses with side shields.

Skin protection

Hand protection

4 - 8 hours (breakthrough time): nitrile rubber

Body protection

Wear protective gloves/protective clothing/eye protection/face protection. Change contaminated clothes at the end of working shift.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Light yellow
Odour	Odourless/Light petroleum.
Odour threshold	Not applicable.
pH	Not applicable.
Melting point/freezing point	<-70°C
Initial boiling point and boiling range	>250°C
Flash point	Closed cup: >94°C [Pensky-Martens.]
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure (Calculated)	Not available.
Density	0,86 g/cm ³ [15°C]
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	>270°C
Decomposition temperature	>280°C

SECTION 9: Physical and chemical properties

Viscosity	Kinematic (40°C): 0,029 cm ² /s (2,9 cSt)
Explosive properties	Not available.
Oxidising properties	Not available.

SECTION 10: Stability and reactivity

10.1 Reactivity	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	Stable under normal conditions.
10.3 Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	Oxidising agent.
10.5 Incompatible materials	Keep away from extreme heat and oxidizing agents.
10.6 Hazardous decomposition products	Incomplete combustion is likely to give rise to a complex mixture of airborne solid and liquid particulates, gases, including carbon monoxide, H ₂ S, SO _x (sulfur oxides) or sulfuric acid and unidentified organic and inorganic compounds.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Distillates (petroleum), hydrotreated middle	LC50 Inhalation Dusts and mists	Rat - Male	>1,72 mg/l	4 hours	API 1987a (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	-
	LD50 Oral	Rat	>5000 mg/kg	-	API 1982a (similar material)
Distillates (petroleum), hydrotreated light naphthenic	LC50 Inhalation Dusts and mists	Rat - Male, Female	>5,53 mg/l	4 hours	EMBSI 1988a (similar material)
	LD50 Dermal	Rabbit	>5000 mg/kg	-	API 1982 (similar material)
	LD50 Oral	Rat	>5000 mg/kg	-	API 1986a (similar material)
2,6-di-tert-butyl-p-cresol	LD50 Dermal	Rat	>5000 mg/kg	-	Supplier's information
	LD50 Oral	Rat	>5000 mg/kg	-	Supplier's information

Conclusion/Summary Harmful if inhaled.

Acute toxicity estimates

Route	ATE value
Inhalation (dusts and mists)	1,769 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Observation	Remarks
Distillates (petroleum), hydrotreated middle	Skin - Irritant	Rabbit	-	14 days	API 1982a,b (similar material)
	Eyes - Non-irritating to the eyes.	Rabbit	1 to 2	24 hours	API 1982a,b (similar material)
Distillates (petroleum), hydrotreated light naphthenic	Skin - Non-irritant to skin.	Rabbit	0 to 0,8	24 to 72 hours	UBTL 1984e (similar material)

SECTION 11: Toxicological information

2,6-di-tert-butyl-p-cresol	Eyes - Non-irritating to the eyes.	Rabbit	0,17 to 0,33	24 to 72 hours	UBTL 1984i (similar material) Supplier's information Supplier's information -
	Eyes - Redness of the conjunctivae	Rabbit	0,5	-	
	Eyes - Iris lesion	Rabbit	0	-	
	Eyes - Oedema of the conjunctivae	Rabbit	0,1	-	

Skin Causes skin irritation.
 Eyes No known significant effects or critical hazards.
 Respiratory No known significant effects or critical hazards.

Sensitisation

Product/ingredient name	Route of exposure	Species	Result	Remarks
Distillates (petroleum), hydrotreated middle	skin	Guinea pig	Not sensitizing	UBTL 1984j, k, l, (similar material) UBTL 1984j,k,l (similar material)
Distillates (petroleum), hydrotreated light naphthenic	skin	Guinea pig	Not sensitizing	

Skin No known significant effects or critical hazards.
 Respiratory No known significant effects or critical hazards.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
Distillates (petroleum), hydrotreated middle	OECD 471 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Cell: Germ	Equivocal	Blackburn G.R et al. 1986 (similar material)
Distillates (petroleum), hydrotreated light naphthenic	OECD 473 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: with and without	Negative	
2,6-di-tert-butyl-p-cresol	476 In vitro Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Somatic	Negative	
	473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal Cell: Germ	Negative	-

Conclusion/Summary No known significant effects or critical hazards.

Carcinogenicity

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Distillates (petroleum), hydrotreated light naphthenic	Negative - Dermal	Mouse - Female	0,22 to 0,25 ml	78 weeks; Various	Doak, 1983, McKee, 1989 (similar material)

Conclusion/Summary The base oil(s) in this product is based on an severely hydrotreated distillate. The product should not be regarded as a carcinogen.

Reproductive toxicity

Conclusion/Summary Not available.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure	Remarks
Distillates (petroleum), hydrotreated light naphthenic	Negative - Dermal	Rat	0 to 2000 mg/kg mg/kg/day	-	(similar material)

Conclusion/Summary No known significant effects or critical hazards.

Aspiration hazard

Product/ingredient name	Result
Distillates (petroleum), hydrotreated middle Distillates (petroleum), hydrotreated light naphthenic	ASPIRATION HAZARD - Category 1 ASPIRATION HAZARD - Category 1

Information on likely routes of exposure Not available.

Potential acute health effects

Eye contact Causes serious eye irritation.
 Inhalation Harmful if inhaled. Inhalation of oil mist or vapours at elevated temperatures may cause respiratory irritation.
 Skin contact Causes skin irritation.
 Ingestion May be fatal if swallowed and enters airways.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
2,6-Di-tert-butyl-p-cresol	Chronic NOAEL Oral	Rat	25 mg/kg	28 days; 7 days per week

General No known significant effects or critical hazards.
 Carcinogenicity The base oil(s) in this product is based on an severely hydrotreated distillate. The product should not be regarded as a carcinogen.
 Mutagenicity No known significant effects or critical hazards.
 Teratogenicity No known significant effects or critical hazards.
 Product/ingredient name No known significant effects or critical hazards.
 Fertility effects No known significant effects or critical hazards.

Other information Not available.

SECTION 12: Ecological information

12.1 Toxicity

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
Distillates (petroleum), hydrotreated middle	Acute LL50 1,13 to 65 mg/l Chronic NOEL 0,163 mg/l Chronic NOEL 0,069 mg/l	Fish Aquatic invertebrates.	96 hours 21 days
Distillates (petroleum), hydrotreated light naphthenic	Acute LL50 >10000 mg/l	Fish Aquatic invertebrates.	14 days 96 hours
2,6-di-tert-butyl-p-cresol	Acute LL50 >100 mg/l Acute NOEL >100 mg/l Chronic NOEL 10 mg/l Acute EC50 0,61 mg/l Acute IC50 >0,4 mg/l Chronic NOEC 0,316 mg/l	Fish Algae Aquatic invertebrates. Daphnia - Magna Algae - Desmodesmus Subspicatus Daphnia - Magna	96 hours 72 hours 21 days 48 hours 72 hours 21 days

Conclusion/Summary Toxic to aquatic life with long lasting effects. Water polluting material.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
2,6-di-tert-butyl-p-cresol	OECD 301C 301C Ready Biodegradability - Modified MITI Test (I)	4,5 % - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Distillates (petroleum), hydrotreated middle	-	-	Inherent
Distillates (petroleum), hydrotreated light naphthenic	-	-	Inherent
2,6-di-tert-butyl-p-cresol	-	-	Not readily

Conclusion/Summary Inherently biodegradable.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Distillates (petroleum), hydrotreated middle	>4	<500	low
Distillates (petroleum), hydrotreated light naphthenic	2 to 6	<500	low
2,6-di-tert-butyl-p-cresol	5,1	>500	high

Conclusion/Summary The product has a potential to bioaccumulate.

12.4 Mobility in soil

Mobility High mobility in soil predicted, based on log Kow > 3.0.

12.5 Results of PBT and vPvB assessment

Not applicable.
Not applicable.

12.6 Other adverse effects

Insoluble in water. Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal

Where possible (e.g. in the absence of relevant contamination), recycling of used substance is feasible and recommended. This substance can be burned or incinerated, subject to national/local authorizations, relevant contamination limits, safety regulations and air quality legislation. Contaminated or waste substance (not directly recyclable): Disposal can be carried out directly, or by delivery to qualified waste handlers. National legislation may identify a specific organization, and/or prescribe composition limits and methods for recovery or disposal.

Hazardous waste Yes.

European waste catalogue (EWC)

Waste code	Waste designation
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils

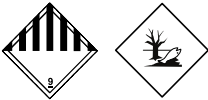
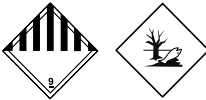
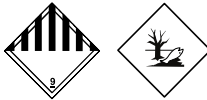
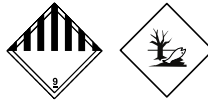
Packaging

Methods of disposal

The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 14: Transport information

International transport regulations

	ADR/RID	ADN	IMO/IMDG Classification	ICAO/IATA Classification
14.1 UN number	3082	3082	3082	3082
14.2 UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle, liquid)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle, liquid)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle, liquid). Marine pollutant (Distillates (petroleum), hydrotreated middle)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Distillates (petroleum), hydrotreated middle, liquid)
14.3 Transport hazard class(es)	9 	9 	9 	9 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	Yes.	Yes.	Yes.	Yes.

SECTION 14: Transport information

<p>Additional information</p>	<p>This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.</p> <p>Hazard identification number 90</p> <p>Special provisions 274;335;375;601</p> <p>Tunnel code -</p>	<p>This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.</p>	<p>This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.</p> <p>Emergency schedules F-A, S-F</p> <p>Special provisions 274;335;969</p> <p>Remarks Marine pollutant</p>	<p>This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.</p> <p>Quantity limitation</p> <p>Passenger and Cargo Aircraft: 450 L.</p> <p>Packaging instructions: 964. Cargo Aircraft Only: 450 L.</p> <p>Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg.</p> <p>Packaging instructions: 964Y.</p>
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14.6 Special precautions for user

Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex I of MARPOL 73/78 and the IBC Code

Oils

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles Not applicable.

Other EU regulations

Seveso Directive

This product is controlled under the Seveso Directive.

National regulations

Limitation of the use of organic solvents Permitted.

International lists

National inventory

Australia All components are listed or exempted.

Canada All components are listed or exempted.

SECTION 15: Regulatory information

China	All components are listed or exempted.
Japan	Japan inventory (ENCS): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.
Malaysia	All components are listed or exempted.
New Zealand	All components are listed or exempted.
Philippines	All components are listed or exempted.
Republic of Korea	All components are listed or exempted.
Taiwan	All components are listed or exempted.
United States	All components are listed or exempted.
Thailand	Not determined.
Turkey	All components are listed or exempted.
Viet Nam	Not determined.

15.2 Chemical safety assessment Complete.

SECTION 16: Other information

Revision comments Not available.

Indicates information that has changed from previously issued version.

- ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
- ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- CMR = Carcinogen, Mutagen or Reproductive toxicant
- CSA = Chemical Safety Assessment
- CO₂ = carbon dioxide
- DNEL = Derived No Effect Level
- EC50 = Half maximal effective concentration
- EUH statement = CLP-specific Hazard statement
- IATA = International Air Transport Association
- IC50 = Half maximal inhibitory concentration
- IMDG = International Maritime Dangerous Goods
- LC50 = Median lethal concentration
- LD50 = Median lethal dose
- PNEC = Predicted No Effect Concentration
- PBT = Persistent, Bioaccumulative and Toxic
- RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
- REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006]
- SCBA = Self-Contained Breathing Apparatus
- SVHC = Substances of Very High Concern

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Chronic 2, H411	Calculation method

SECTION 16: Other information

Full text of abbreviated H statements	H304 H315 H332 H400 H410 H411	May be fatal if swallowed and enters airways. Causes skin irritation. Harmful if inhaled. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects.
Full text of classifications [CLP/GHS]	Acute Tox. 4, H332 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 2, H411 Asp. Tox. 1, H304 Skin Irrit. 2, H315	ACUTE TOXICITY (inhalation) - Category 4 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 ASPIRATION HAZARD - Category 1 SKIN CORROSION/IRRITATION - Category 2

Date of printing 2017-07-06
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 Date of previous issue 2017-01-05
 Version 3

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

The information provided herein does not in any way constitute a product warranty, product specification, agreement on quality or similar.

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Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

List of use descriptors	<p>Identified use name: Distribution of substance - Industrial</p> <p>Process Category: PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15, PROC01</p> <p>Substance supplied to that use in form of: Substance/mixture</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ESVOC SpERC 1.1b.v1</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
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Environmental contributing scenarios	Distribution of substance
Health Contributing scenarios	Distribution of substance

Number of the ES	9.3.1a
Industry Association	Concawe 2013
Generic exposure scenario	01a
Processes and activities covered by the exposure scenario	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 2.0e6</p> <p>Fraction of Regional tonnage used locally 0.002</p> <p>Annual site tonnage (tonnes/year) 3.9e3</p> <p>Maximum daily site tonnage (kg/day) 3.9e4</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 100</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 1.0e-3</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 1.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.00001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required.

Section 2 - Exposure controls

Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 90
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.2e7 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Distribution of substance	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Process sampling No other specific measures identified.
	Laboratory activities No other specific measures identified.
	Bulk closed loading and unloading Handle substance within a closed system. Wear suitable gloves tested to EN374.
	Bulk open loading and unloading Wear suitable gloves tested to EN374.
	Drum and small package filling Wear suitable gloves tested to EN374.

Section 2 - Exposure controls

	<p>Equipment cleaning and maintenance Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Storage Store substance within a closed system.</p>
Conditions and measures related to personal protection and hygiene	
Personal protection	<p>See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).</p>

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
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Exposure estimation and reference to its source - Environment: 2: Distribution of substance	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Workers: 1: Distribution of substance	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.</p>
Health	<p>Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.</p>

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

List of use descriptors	<p>Identified use name: Formulation and (re)packing of substances and mixtures - Industrial</p> <p>Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15</p> <p>Substance supplied to that use in form of: Substance/mixture</p> <p>Sector of end use: SU03, SU10</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC02, ESVOC SpERC 2.2.v1</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
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Environmental contributing scenarios	Formulation and (re)packing of substances and mixtures
Health Contributing scenarios	Formulation and (re)packing of substances and mixtures

Number of the ES	9.4.1a
Industry Association	Concawe 2013
Generic exposure scenario	02
Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 1.9e6</p> <p>Fraction of Regional tonnage used locally 0.016</p> <p>Annual site tonnage (tonnes/year) 3.0e4</p> <p>Maximum daily site tonnage (kg/day) 1.0e5</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 300</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 1.0e-2</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 2.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.0001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.

Section 2 - Exposure controls

Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 0
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 38.7 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.1e6 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Formulation and (re)packing of substances and mixtures	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Batch processes at elevated temperatures Provide extract ventilation to points where emissions occur.
	Process sampling No other specific measures identified.
	Drum/batch transfers Use drum pumps or carefully pour from container. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Bulk transfers Handle substance within a closed system. Wear suitable gloves tested to EN374.
	Mixing operations (open systems)

Section 2 - Exposure controls

	<p>Provide extract ventilation to points where emissions occur. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Production of preparation or articles by tableting, compression, extrusion or pelletisation Wear suitable gloves tested to EN374.</p> <p>Drum and small package filling Wear suitable gloves tested to EN374.</p> <p>Laboratory activities No other specific measures identified.</p> <p>Equipment cleaning and maintenance Drain down system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Storage Store substance within a closed system.</p>
<p>Conditions and measures related to personal protection and hygiene</p>	
<p>Personal protection</p>	<p>See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).</p>

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
<p>Exposure estimation and reference to its source - Environment: 2: Formulation and (re)packing of substances and mixtures</p>	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	Not available.
<p>Exposure estimation and reference to its source - Workers: 1: Formulation and (re)packing of substances and mixtures</p>	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.</p>
Health	<p>Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other</p>

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

health effects. Risk management measures are based on qualitative risk characterisation.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

List of use descriptors	<p>Identified use name: Distribution of substance - Industrial</p> <p>Process Category: PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15, PROC01</p> <p>Substance supplied to that use in form of: Substance/mixture</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ESVOC SpERC 1.1b.v1</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
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Environmental contributing scenarios	Distribution of substance
Health Contributing scenarios	Distribution of substance

Number of the ES	9.3.1a
Industry Association	Concawe 2013
Generic exposure scenario	01a
Processes and activities covered by the exposure scenario	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 2.0e6</p> <p>Fraction of Regional tonnage used locally 0.002</p> <p>Annual site tonnage (tonnes/year) 3.9e3</p> <p>Maximum daily site tonnage (kg/day) 3.9e4</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 100</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 1.0e-3</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 1.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.00001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required.

Section 2 - Exposure controls

Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 90
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.2e7 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Distribution of substance	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Process sampling No other specific measures identified.
	Laboratory activities No other specific measures identified.
	Bulk closed loading and unloading Handle substance within a closed system. Wear suitable gloves tested to EN374.
	Bulk open loading and unloading Wear suitable gloves tested to EN374.
	Drum and small package filling Wear suitable gloves tested to EN374.

Section 2 - Exposure controls

	<p>Equipment cleaning and maintenance Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Storage Store substance within a closed system.</p>
Conditions and measures related to personal protection and hygiene	
Personal protection	<p>See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).</p>

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
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Exposure estimation and reference to its source - Environment: 2: Distribution of substance	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Workers: 1: Distribution of substance	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.</p>
Health	<p>Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.</p>

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

List of use descriptors	<p>Identified use name: Formulation and (re)packing of substances and mixtures - Industrial</p> <p>Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15</p> <p>Substance supplied to that use in form of: Substance/mixture</p> <p>Sector of end use: SU03, SU10</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC02, ESVOC SpERC 2.2.v1</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
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Environmental contributing scenarios	Formulation and (re)packing of substances and mixtures
Health Contributing scenarios	Formulation and (re)packing of substances and mixtures

Number of the ES	9.4.1a
Industry Association	Concawe 2013
Generic exposure scenario	02
Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 1.9e6</p> <p>Fraction of Regional tonnage used locally 0.016</p> <p>Annual site tonnage (tonnes/year) 3.0e4</p> <p>Maximum daily site tonnage (kg/day) 1.0e5</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 300</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 1.0e-2</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 2.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.0001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.

Section 2 - Exposure controls

Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 0
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 38.7 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.1e6 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Formulation and (re)packing of substances and mixtures	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Batch processes at elevated temperatures Provide extract ventilation to points where emissions occur.
	Process sampling No other specific measures identified.
	Drum/batch transfers Use drum pumps or carefully pour from container. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Bulk transfers Handle substance within a closed system. Wear suitable gloves tested to EN374.
	Mixing operations (open systems)

Section 2 - Exposure controls

Provide extract ventilation to points where emissions occur. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Production of preparation or articles by tableting, compression, extrusion or pelletisation
Wear suitable gloves tested to EN374.

Drum and small package filling
Wear suitable gloves tested to EN374.

Laboratory activities
No other specific measures identified.

Equipment cleaning and maintenance
Drain down system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Storage
Store substance within a closed system.

Conditions and measures related to personal protection and hygiene

Personal protection See Section 8 of the safety data sheet (general health and safety measures).
See Section 8 of the safety data sheet (personal protective equipment).

Section 3 - Exposure estimation and reference to its source

Website: Not applicable.

Exposure estimation and reference to its source - Environment: 2: Formulation and (re)packing of substances and mixtures

Exposure assessment (environment): Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source Not available.

Exposure estimation and reference to its source - Workers: 1: Formulation and (re)packing of substances and mixtures

Exposure assessment (human): The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Exposure estimation and reference to its source Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.

Health Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

health effects. Risk management measures are based on qualitative risk characterisation.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Distribution of substance - Industrial (Other Gas Oils, IP346 <3%)
List of use descriptors	<p>Identified use name: Distribution of substance - Industrial</p> <p>Process Category: PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15, PROC01</p> <p>Substance supplied to that use in form of: Substance/mixture</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07, ESVOC SpERC 1.1b.v1</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
Environmental contributing scenarios	Distribution of substance
Health Contributing scenarios	Distribution of substance

Number of the ES	9.3.1a
Industry Association	Concawe 2013
Generic exposure scenario	01a
Processes and activities covered by the exposure scenario	Bulk loading (including marine vessel/barge, rail/road car and IBC loading) of substance within closed or contained systems, including incidental exposures during its sampling, storage, unloading, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 2.0e6</p> <p>Fraction of Regional tonnage used locally 0.002</p> <p>Annual site tonnage (tonnes/year) 3.9e3</p> <p>Maximum daily site tonnage (kg/day) 3.9e4</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 100</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 1.0e-3</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 1.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.00001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Section 2 - Exposure controls

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required.
Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 90
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.2e7 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Distribution of substance	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Process sampling No other specific measures identified.
	Laboratory activities No other specific measures identified.
	Bulk closed loading and unloading Handle substance within a closed system. Wear suitable gloves tested to EN374.
	Bulk open loading and unloading

Section 2 - Exposure controls

	Wear suitable gloves tested to EN374.
	Drum and small package filling Wear suitable gloves tested to EN374.
	Equipment cleaning and maintenance Drain down and flush system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Storage Store substance within a closed system.
Conditions and measures related to personal protection and hygiene	
Personal protection	See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
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Exposure estimation and reference to its source - Environment: 2: Distribution of substance	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	Not available.

Exposure estimation and reference to its source - Workers: 1: Distribution of substance	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.
Health	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Formulation & (Re)packing of Substance and Mixture - Industrial (Other Gas Oils, IP346<3%)
List of use descriptors	Identified use name: Formulation and (re)packing of substances and mixtures - Industrial Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15 Substance supplied to that use in form of: Substance/mixture Sector of end use: SU03, SU10 Subsequent service life relevant for that use: No. Environmental Release Category: ERC02, ESVOC SpERC 2.2.v1 Market sector by type of chemical product: Not applicable. Article category related to subsequent service life: Not applicable.
Environmental contributing scenarios	Formulation and (re)packing of substances and mixtures
Health Contributing scenarios	Formulation and (re)packing of substances and mixtures

Number of the ES	9.4.1a
Industry Association	Concawe 2013
Generic exposure scenario	02
Processes and activities covered by the exposure scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Amounts used	Fraction of EU tonnage used in region 0.1 Regional use tonnage (tonnes/year) 1.9e6 Fraction of Regional tonnage used locally 0.016 Annual site tonnage (tonnes/year) 3.0e4 Maximum daily site tonnage (kg/day) 1.0e5
Frequency and duration of use	Continuous release Emission days (days per year) 300
Environment factors not influenced by risk management	Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM) 1.0e-2 Release fraction to wastewater from process (initial release prior to RMM) 2.0e-6 Release fraction to soil from process (initial release prior to RMM) 0.0001
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Section 2 - Exposure controls

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by freshwater sediment. Prevent discharge of undissolved substance to or recover from onsite wastewater. If discharging to municipal sewage treatment plant, no on-site wastewater treatment required.
Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 0
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 38.7 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.1e6 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External recovery and recycling of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Formulation and (re)packing of substances and mixtures	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios - Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	General exposures (closed systems) Handle substance within a closed system.
	General exposures (open systems) Wear suitable gloves tested to EN374.
	Batch processes at elevated temperatures Provide extract ventilation to points where emissions occur.
	Process sampling No other specific measures identified.
	Drum/batch transfers Use drum pumps or carefully pour from container. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.

Section 2 - Exposure controls

	<p>Bulk transfers Handle substance within a closed system. Wear suitable gloves tested to EN374.</p> <p>Mixing operations (open systems) Provide extract ventilation to points where emissions occur. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Production of preparation or articles by tableting, compression, extrusion or pelletisation Wear suitable gloves tested to EN374.</p> <p>Drum and small package filling Wear suitable gloves tested to EN374.</p> <p>Laboratory activities No other specific measures identified.</p> <p>Equipment cleaning and maintenance Drain down system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Storage Store substance within a closed system.</p>
Conditions and measures related to personal protection and hygiene	
Personal protection	See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
Exposure estimation and reference to its source - Environment: 2: Formulation and (re)packing of substances and mixtures	
Exposure assessment (environment):	Hydrocarbon Block Method (Petrorisk)
Exposure estimation and reference to its source	Not available.
Exposure estimation and reference to its source - Workers: 1: Formulation and (re)packing of substances and mixtures	
Exposure assessment (human):	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.
Exposure estimation and reference to its source	Not available.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet. Scaled local assessments for EU refineries have been performed using site-specific data and are attached in PETRORISK file - "Site-Specific Production" worksheet.</p>
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Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Health

Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Use as Functional fluids - Industrial (Other gas oils, IP346 <3%)
List of use descriptors	<p>Identified use name: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers. - Industrial</p> <p>Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09</p> <p>Substance supplied to that use in form of: Substance</p> <p>Sector of end use: SU03</p> <p>Subsequent service life relevant for that use: No.</p> <p>Environmental Release Category: ERC07,</p> <p>Market sector by type of chemical product: Not applicable.</p> <p>Article category related to subsequent service life: Not applicable.</p>
Environmental contributing scenarios	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.
Health Contributing scenarios	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Number of the ES	9.24.1a
Industry Association	Concawe 2013
Generic exposure scenario	13a
Processes and activities covered by the exposure scenario	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Amounts used	<p>Fraction of EU tonnage used in region 0.1</p> <p>Regional use tonnage (tonnes/year) 3.2e2</p> <p>Fraction of Regional tonnage used locally 0.032</p> <p>Annual site tonnage (tonnes/year) 1.0e1</p> <p>Maximum daily site tonnage (kg/day) 5.0e2</p>
Frequency and duration of use	<p>Continuous release</p> <p>Emission days (days per year) 20</p>
Environment factors not influenced by risk management	<p>Local freshwater dilution factor 10</p> <p>Local marine water dilution factor 100</p>
Other conditions affecting environmental exposure	<p>Release fraction to air from process (initial release prior to RMM) 5.0e-3</p> <p>Release fraction to wastewater from process (initial release prior to RMM) 3.0e-6</p> <p>Release fraction to soil from process (initial release prior to RMM) 0.001</p>
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Section 2 - Exposure controls

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). Prevent discharge of undissolved substance to or recover from onsite wastewater. No wastewater treatment required.
Risk management measures - Air	Treat air emission to provide a typical removal efficiency of (%) 0
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 2.2e5 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios- Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	Bulk transfers No other specific measures identified.
	Drum/batch transfers Wear suitable gloves tested to EN374.
	Filling of articles/equipment Transfer via enclosed lines.
	Filling/preparation of equipment from drums or containers Wear suitable gloves tested to EN374.
	General exposures (closed systems) No other specific measures identified.

Section 2 - Exposure controls

	<p>General exposures (open systems) Elevated temperature Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.</p> <p>Equipment cleaning and maintenance Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.</p> <p>Storage Store substance within a closed system.</p>
Conditions and measures related to personal protection and hygiene	
Personal protection	<p>See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).</p>

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
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Exposure estimation and reference to its source - Environment: 2: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.	
Exposure assessment (environment):	Not available.
Exposure estimation and reference to its source	Hydrocarbon Block Method (Petrorisk)

Exposure estimation and reference to its source - Workers: 1: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.	
Exposure assessment (human):	Not available.
Exposure estimation and reference to its source	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	<p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.</p>
Health	<p>Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented.</p> <p>Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p> <p>Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects.</p>

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Use as Functional fluids- Professional (Other Gas oils, IP346 <3%)
List of use descriptors	Identified use name: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers. - Professional Process Category: PROC01, PROC02, PROC03, PROC08a, PROC09, PROC20 Substance supplied to that use in form of: Substance Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC09a, ERC09b, ESVOC SpERC 9.13b.v1 Market sector by type of chemical product: Not applicable. Article category related to subsequent service life: Not applicable.
Environmental contributing scenarios	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.
Health Contributing scenarios	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.

Number of the ES	9.25.1a
Industry Association	Concawe 2013
Generic exposure scenario	13b
Processes and activities covered by the exposure scenario	Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.
Additional information	Professional

Section 2 - Exposure controls

Product characteristics	Substance is complex UVCB. Predominantly hydrophobic
Amounts used	Fraction of EU tonnage used in region 0.1 Regional use tonnage (tonnes/year) 1.8e2 Fraction of Regional tonnage used locally 0.0005 Annual site tonnage (tonnes/year) 8.8e-2 Maximum daily site tonnage (kg/day) 2.4e-1
Frequency and duration of use	Continuous release Emission days (days per year) 365
Environment factors not influenced by risk management	Local freshwater dilution factor 10 Local marine water dilution factor 100
Other conditions affecting environmental exposure	Release fraction to air from process (initial release prior to RMM) 0.05 Release fraction to wastewater from process (initial release prior to RMM) 0.025 Release fraction to soil from process (initial release prior to RMM) 0.025
Technical conditions and measures at process level (source) to prevent release	Common practices vary across sites thus conservative process release estimates used.

Section 2 - Exposure controls

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	Risk from environmental exposure is driven by humans via indirect exposure (primarily ingestion). No wastewater treatment required.
Risk management measures - Air	Treat air emission to provide a typical removal efficiency of Not available.
Risk management measures - Water	Treat on-site wastewater (prior to receiving water discharge) to provide the required removal efficiency of (%) 0 If discharging to municipal sewage treatment plant, provide the required on-site wastewater removal efficiency of (%) 0
Organisational measures to prevent/limit release from site	Do not apply industrial sludge to natural soils. Sewage sludge should be incinerated, contained or reclaimed.
Conditions and measures related to sewage treatment plant	Estimated substance removal from wastewater via on-site sewage treatment (%) 94.3 Total efficiency of removal from wastewater after on-site and off-site (municipal treatment plant) RMMs (%) 94.3 Maximum allowable site tonnage (M _{Safe}) based on release following total wastewater treatment removal (kg/day) 1.1e2 Assumed on-site sewage treatment plant flow (m ³ /d) 2000
Conditions and measures related to external treatment of waste for disposal	External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste	External treatment and disposal of waste should comply with applicable local and/or national regulations.

Contributing scenario controlling worker exposure for 0: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.	
Product characteristics	Liquid, vapour pressure < 0.5 kPa at Standard Temperature and Pressure
Concentration of substance in mixture or article	Covers percentage substance in the product up to 100% (unless stated differently).
Physical state	Liquid With potential for aerosol generation
Frequency and duration of use	Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently. Assumes a good basic standard of occupational hygiene is implemented
	Contributing scenarios- Operational conditions and risk management measures
	General measures (skin irritants) Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.
	Drum/batch transfers Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Transfer from/pouring from containers Wear suitable gloves tested to EN374.
	Filling/preparation of equipment from drums or containers Wear suitable gloves tested to EN374.
	General exposures (closed systems) No other specific measures identified.
	General exposures (open systems) Wear chemical-resistant gloves (tested to EN374) in combination with 'basic'

Section 2 - Exposure controls

	employee training.
	Equipment cleaning and maintenance Drain down system prior to equipment break-in or maintenance. Wear chemical-resistant gloves (tested to EN374) in combination with 'basic' employee training.
	Storage Store substance within a closed system.
Conditions and measures related to personal protection and hygiene	
Personal protection	See Section 8 of the safety data sheet (general health and safety measures). See Section 8 of the safety data sheet (personal protective equipment).

Section 3 - Exposure estimation and reference to its source

Website:	Not applicable.
Exposure estimation and reference to its source - Environment: 2: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.	
Exposure assessment (environment):	Not available.
Exposure estimation and reference to its source	Hydrocarbon Block Method (Petrisk)
Exposure estimation and reference to its source - Workers: 1: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in professional equipment including maintenance and related material transfers.	
Exposure assessment (human):	Not available.
Exposure estimation and reference to its source	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination. Required removal efficiency for air can be achieved using on-site technologies, either alone or in combination. Further details on scaling and control technologies are provided in SPERC factsheet.
Health	Predicted exposures are not expected to exceed the DN(M)EL when the risk management measures/operational conditions outlined in section 2 are implemented. Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Risk management measures are based on qualitative risk characterisation.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Use of lubricants in high energy open processes - Industrial (2,6-di-tert-butyl-p-cresol)
List of use descriptors	Identified use name: Lubrication at high energy conditions in metal working operations - Industrial Process Category: PROC01, PROC02, PROC08b, PROC17 Substance supplied to that use in form of: As such Sector of end use: SU03 Subsequent service life relevant for that use: No. Environmental Release Category: ERC04 Market sector by type of chemical product: PC24, PC25
Environmental contributing scenarios	
Health Contributing scenarios	

Number of the ES	Not applicable.
Industry Association	Not applicable.
Generic exposure scenario	Not applicable.
Processes and activities covered by the exposure scenario	
Additional information	Industrial

Section 2 - Exposure controls

Product characteristics	solid Melting/Freezing Point (°C): 69.8
Concentration of substance in mixture or article	Covers percentage substance in the product up to XX%
Amounts used	Annual site tonnage 16.5 t/a
Frequency and duration of use	Continuous release(d/a): 300
Environment factors not influenced by risk management	Local freshwater dilution factor 10 Receiving surface water flow is 18000 m³/d. Local marine water dilution factor 100
Other conditions affecting environmental exposure	Not applicable.
Technical conditions and measures at process level (source) to prevent release	% Release fraction to wastewater from process (initial release prior to RMM) 0.2 % Release fraction to air from process (initial release prior to RMM) 0.01 % Release fraction to soil from process (initial release prior to RMM) 0
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	On-site wastewater treatment required. Ensure all waste water is collected and treated via a waste water treatment plant. Floors should be impervious, resistant to liquids and easy to clean.
Organisational measures to prevent/limit release from site	Ensure operatives are trained to minimise exposures.
Conditions and measures related to sewage treatment plant	Size of industrial sewage treatment plant (m³/d): 2000,

Section 2 - Exposure controls

Conditions and measures related to external treatment of waste for disposal	No special measures are required. General information, See section 13 for waste disposal information.
Conditions and measures related to external recovery of waste	See section 13 for waste disposal information.

Contributing scenario controlling worker exposure for 0:	
Product characteristics	Melting/Freezing Point (°C): 69.8
Concentration of substance in mixture or article	≤100%
Physical state	Liquid
Frequency and duration of use	Exposure duration per day: >4 h (half shift). Exposure duration per year: 230 d
Human factors not influenced by risk management	Respiratory (m³/d): 10 Body weight: 70 kg
Other conditions affecting workers exposure	The product should be handled at room temperature.
Technical conditions and measures at process level (source) to prevent release	No special measures required.
Technical conditions and measures to control dispersion from source towards the worker	PROC01, PROC02, PROC08b Assumes activities are at room temperature. Handle only in a place with local exhaust ventilation (or other adequate ventilation). Efficiency of at least 90 %
	PROC17 Handle only in a place with local exhaust ventilation (or other adequate ventilation). Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Organisational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures.
Conditions and measures related to personal protection and hygiene	
Personal protection	Wear protective clothing. See Section 8 of the safety data sheet (personal protective equipment).
	PROC01, PROC02, PROC08b Wear protective gloves. Efficiency of at least 90%
	PROC 17b Wear protective gloves. Efficiency of at least 80%

Section 3 - Exposure estimation and reference to its source

Website: Not available.

Exposure estimation and reference to its source - Environment: 1:	
Exposure assessment (environment):	EUSES(v2.1).
Exposure estimation and reference to its source	Risk characterisation ratio (PEC/PNEC): <1

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human):	Used ECETOC TRA model (May 2010 release).(3.0)
Exposure estimation and reference to its source	Risk characterisation ratio DNELs <1

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment	Not available.
Health	Not available.

Environment	Not applicable.
Health	Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. See Section 8 for information on appropriate personal protective equipment.

Identification of the substance or mixture

Product definition	Mixture
Product name	NYSWITCHO™ 3X

Section 1 - Title

Short title of the exposure scenario	Use of lubricants in high energy open processes - Professional (2,6-di-tert-butyl-p-cresol)
List of use descriptors	Identified use name: Lubrication at high energy conditions in metal working operations - Professional Process Category: PROC01, PROC02, PROC08b, PROC17 Substance supplied to that use in form of: As such Sector of end use: SU22 Subsequent service life relevant for that use: No. Environmental Release Category: ERC08a Market sector by type of chemical product: PC24, PC25
Environmental contributing scenarios	
Health Contributing scenarios	

Number of the ES	Not applicable.
Industry Association	Not applicable.
Generic exposure scenario	Not applicable.
Processes and activities covered by the exposure scenario	
Additional information	Professional

Section 2 - Exposure controls

Product characteristics	solid Melting/Freezing Point (°C): 69.8
Concentration of substance in mixture or article	Covers percentage substance in the product up to XX%
Amounts used	Annual site tonnage 27.5 t/a
Frequency and duration of use	Continuous release 365 days.
Environment factors not influenced by risk management	Local freshwater dilution factor 10 Receiving surface water flow is 18000 m³/d. Local marine water dilution factor 100
Other conditions affecting environmental exposure	Not applicable.
Technical conditions and measures at process level (source) to prevent release	% Release fraction to wastewater from process (initial release prior to RMM) 0.2 % Release fraction to air from process (initial release prior to RMM) 0,1 % Release fraction to soil from process (initial release prior to RMM) 1
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	On-site wastewater treatment required. Ensure all waste water is collected and treated via a waste water treatment plant. Floors should be impervious, resistant to liquids and easy to clean.
Organisational measures to prevent/limit release from site	Ensure operatives are trained to minimise exposures.
Conditions and measures related to sewage treatment plant	Size of industrial sewage treatment plant (m³/d): 2000,

Section 2 - Exposure controls

Conditions and measures related to external treatment of waste for disposal	No special measures are required. Send to an appropriate hazardous waste incineration facility, in compliance with legislation. General information See section 13 for waste disposal information.
Conditions and measures related to external recovery of waste	See section 13 for waste disposal information.

Contributing scenario controlling worker exposure for 0:	
Product characteristics	Melting/Freezing Point (°C): 69.8
Concentration of substance in mixture or article	≤100%
Physical state	Liquid
Amounts used	Not applicable.
Frequency and duration of use	Exposure duration per year: 230 d PROC01; PROC02; PROC08b Exposure duration per day: >4 h (half shift). PROC 17: Exposure duration per day:0.25-1(h/d)
Human factors not influenced by risk management	Respiratory (m³/d): 10 Body weight:70 kg
Other conditions affecting workers exposure	The product should be handled at room temperature. Indoor
Technical conditions and measures at process level (source) to prevent release	No special measures required.
Technical conditions and measures to control dispersion from source towards the worker	PROC01; PROC02; PROC08b: Handle only in a place with local exhaust ventilation (or other adequate ventilation). Efficiency of at least 80 % PROC 17 Handle only in a place with local exhaust ventilation (or other adequate ventilation). Efficiency of at least 80%
Organisational measures to prevent/limit releases, dispersion and exposure	Ensure operatives are trained to minimise exposures.
Conditions and measures related to personal protection and hygiene	
Personal protection	Wear protective clothing. See Section 8 of the safety data sheet (personal protective equipment). PROC01; PROC02; PROC08b: Wear protective gloves. Efficiency of at least 90% PROC 17: Wear protective gloves. Efficiency of at least80%

Section 3 - Exposure estimation and reference to its source

Website:	Not available.
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Exposure estimation and reference to its source - Environment: 1:	
Exposure assessment (environment):	EUSES(v2.1).
Exposure estimation and reference to its source	Risk characterisation ratio (PEC/PNEC): <1

Section 3 - Exposure estimation and reference to its source

Exposure estimation and reference to its source - Workers: 2:

Exposure assessment (human): Used ECETOC TRA model (May 2010 release).(3.0)

Exposure estimation and reference to its source Risk characterisation ratio DNELs <1

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment Not available.

Health Not available.

Environment Not applicable.

Health Wear protective gloves/protective clothing/eye protection/face protection.

Wear respiratory protection.

See Section 8 for information on appropriate personal protective equipment.