



SAFETY DATA SHEET (1907/2006)

R0717162

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TECHWAX LUB60 / TORQ-TRIM II PLUS

ANNEX

1. Introduction

1.1. Overview of uses and Exposure Scenarios

Table 1. Overview of exposure scenarios and contributing scenarios

Identifiers	Market Sector	Titles of exposure scenarios and the related contributing scenarios	Tonnage (tonnes per year)
ES1 - M1		Manufacture - Manufacture - Manufacture (ERC 1) - Indoor contained batch-process production in ventilated facilities (PROC 3) - Packaging in dedicated facilities (PROC 8b) - Quality control at laboratory (PROC 15)	175.0
ES2 - F1		Formulation - Formulation - Formulation (ERC 2) - Formulation in a closed batch process (PROC 3) - Packaging in dedicated facilities (PROC 8b) - Quality control at laboratory (PROC 15)	175.0
ES3 - IW1		Use at industrial site - Use at industrial site - Use at industrial site (ERC 4) - Closed, continuous process of drilling (PROC 2) - Emptying tanks with dedicated equipment (PROC 8b) - Quality control at laboratory (PROC 15)	175.0
Manufacture: M-#, Formulation: F-#, Industrial end use at site: IW-#.			

2. Exposure scenario 1: Manufacture - Manufacture

Environment contributing scenario(s):	
Manufacture	ERC 1
Worker contributing scenario(s):	
Indoor contained batch-process production in ventilated facilities	PROC 3
Packaging in dedicated facilities	PROC 8b
Quality control at laboratory	PROC 15

Description of the activities and technical processes covered in the exposure scenario:

- Production takes place in indoor factories in a batch process in ventilated facilities.
- The final product is transferred to a storage tank.
- Cleaning of reactors is performed as a closed process; waste is collected and reused or sent to an approved waste contractor for treatment/disposal. Hence, waste treatment complies with all appropriate UK Duty of Care and other appropriate waste regulations.
- Packaging of substance takes place in dedicated equipment to bulk containers, IBC or drums.
- Quality control at laboratory may be performed by process operators or laboratory personnel.
- In the laboratory handling within fume cupboards or equivalent is required.
- To protect eyes and skin, Personal Protective Equipment (PPE) like goggles, chemical resistant gloves and protective clothing shall be worn.

Explanation on the approach taken for the ES

- Substance is produced in indoor factories in a batch process in ventilated facilities and further treatment occurs with dedicated equipment to minimize the risk of exposure.
- The maximum reaction temperature and pressure during production is 140°C at atmospheric pressure.
- The final product is transferred to a storage tank.
- The substance is of low volatility and release to air is considered not to be relevant.
- The main release route is via waste. However, waste is never directed as effluent to sewage but reused or treated under controlled conditions.

2.1. Environmental contributing scenario 1: Manufacture

2.1.1. Conditions of use scenario 1

Techwax has no process drains and therefore does not send process effluent to an off-site Waste Water Treatment Plant. If any waste is created during the process it will be reused or, if reuse is not possible, waste is sent to an approved waste contractor for treatment/disposal. This process complies with all appropriate UK Duty of Care and other appropriate waste regulations. As a consequence, also there exists no application of STP sludge to soil by landfill or other processes.
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Amount used, frequency and duration of use (or from service life)
• Daily use at site: ≤ 8.75 tonnes/day
• Annual use at a site: ≤ 175 tonnes/year
• Percentage of tonnage used at regional scale: = 100 %
Conditions and measures related to sewage treatment plant
• Municipal STP: No [Effectiveness Water: 0%] <i>Techwax has no process drains and therefore does NOT send process effluent to an off-site Waste Water Treatment Plant.</i>
Conditions and measures related to treatment of waste (including article waste)
• Particular considerations on the waste treatment operations: No (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/local legislation is sufficient.)
Other conditions affecting environmental exposure
• Discharge rate of effluent: ≥ 0 m ³ /d <i>Techwax has no process drains and therefore does NOT send process effluent to an off-site Waste Water Treatment Plant.</i>
• Receiving surface water flow rate: $\geq 1.8E4$ m ³ /d

2.2. Worker contributing scenario 1.1: Indoor contained batch-process production in ventilated facilities (PROC 3)

2.2.1. Conditions of use scenario 1.1

Batch manufacture of a chemical or formulation where the predominant handling is in a contained manner. Processes, tasks activities covered:

1. Industrial manufacture of chemical substances;
2. Sampling;
3. Charging to storage tanks in enclosed system;
4. Cleaning of the process equipment in closed systems.

Product (article) characteristics
<ul style="list-style-type: none"> • Concentration of substance in mixture: Substance as such • Vapour pressure at elevated temperature: < 1E4 Pa <i>10001 Pa is a default value corresponding to the highest volatility band for a liquid substance in TRA. Thus a worst case exposure inhalation concentration is calculated if the user has no further information on the vapour pressure at elevated temperature.</i>
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none"> • Duration of activity: < 8 hours
Technical and organisational conditions and measures
<ul style="list-style-type: none"> • General ventilation: Good general ventilation (3-5 air changes per hour) • Containment: Closed batch process with occasional controlled exposure • Local exhaust ventilation: yes [Effectiveness Inhal: 90%] • Local exhaust ventilation (for dermal): yes [Effectiveness Dermal: 90%] • Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none"> • Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%] • Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
<ul style="list-style-type: none"> • Place of use: Indoor • Process temperature (for liquid): <= 140 °C • Skin surface potentially exposed: One hand face only (240 cm²)

2.3. Worker contributing scenario 1.2: Packaging in dedicated facilities (PROC 8b)

2.3.1. Conditions of use scenario 1.2

Packaging of chemical substances into bulk transport, IBC containers or drums.

Processes, tasks activities covered:

1. Filling of bulk transport;
2. Filling of IBC containers;
3. Filling of drums

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• General ventilation: Basic general ventilation (1-3 air changes per hour)
• Containment: Semi-closed process with occasional controlled exposure
• Local exhaust ventilation: yes [Effectiveness Inhal: 95%]
• Local exhaust ventilation (for dermal): yes [Effectiveness Dermal: 95%]
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Indoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: Two hands (960 cm ²)

2.4. Worker contributing scenario 1.3: Quality control at laboratory (PROC 15)

2.4.1. Conditions of use scenario 1.3

Use of substances at small scale laboratory (< 1 l or 1 kg present at workplace). Larger laboratories and R+D installations should be treated as industrial processes.

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• General ventilation: Basic general ventilation (1-3 air changes per hour)
• Containment: No
• Local exhaust ventilation: yes [Effectiveness Inhal: 90%]
• Local exhaust ventilation (for dermal): yes [Effectiveness Dermal: 90%]
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Indoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: One hand face only (240 cm ²)

3. Exposure scenario 2: Formulation - Formulation

Environment contributing scenario(s):	
Formulation	ERC 2
Worker contributing scenario(s):	
Formulation in a closed batch process	PROC 3
Packaging in dedicated facilities	PROC 8b
Quality control at laboratory	PROC 15

Description of the activities and technical processes covered in the exposure scenario:

- Formulation is carried out in a closed batch process.
- Charging is from dedicated storage tanks or IBC containers.
- Cleaning of reactors is performed as a closed process.
- Packaging of substance takes place in dedicated equipment to bulk containers, IBC or drums.
- Quality control at laboratory may be performed by process operators or laboratory personnel. In the laboratory handling within fume cupboards or equivalent is required.

Explanation on the approach taken for the ES

- Exposure to the substance during formulation is very limited as it is carried out in a closed batch process.
- The substance is of low volatility and release to air is considered not to be relevant.
- The main release route is via waste. However, waste is never directed as effluent to sewage but reused or treated under controlled conditions.

3.1. Environmental contributing scenario 2: Formulation

3.1.1. Conditions of use scenario 2

Amount used, frequency and duration of use (or from service life)
• Daily use at site: ≤ 1.75 tonnes/day
• Annual use at a site: ≤ 175 tonnes/year
• Percentage of tonnage used at regional scale: = 100 %
Conditions and measures related to sewage treatment plant
• Municipal STP: No [Effectiveness Water: 0%] <i>Techwax has no process drains and therefore does NOT send process effluent to an off-site Waste Water Treatment Plant.</i>
Conditions and measures related to treatment of waste (including article waste)
• Particular considerations on the waste treatment operations: No (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/local legislation is sufficient.)
Other conditions affecting environmental exposure
• Discharge rate of effluent: ≥ 0 m ³ /d <i>Techwax has no process drains and therefore does NOT send process effluent to an off-site Waste Water Treatment Plant.</i>
• Receiving surface water flow rate: $\geq 1.8E4$ m ³ /d

3.2. Worker contributing scenario 2.1: Formulation in a closed batch process (PROC 3)

3.2.1. Conditions of use scenario 2.1

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• General ventilation: Good general ventilation (3-5 air changes per hour)
• Containment: Closed batch process with occasional controlled exposure
• Local exhaust ventilation: no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Indoor
• Process temperature (for liquid): ≤ 40 °C
• Skin surface potentially exposed: One hand face only (240 cm ²)

3.3. Worker contributing scenario 2.2: Packaging in dedicated facilities (PROC 8b)

3.3.1. Conditions of use scenario 2.2

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• General ventilation: Good general ventilation (3-5 air changes per hour)
• Containment: Semi-closed process with occasional controlled exposure
• Local exhaust ventilation: no [Effectiveness Inhal: 0%]
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374 with specific activity training) [Effectiveness Dermal: 95%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Indoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: Two hands (960 cm ²)

3.4. Worker contributing scenario 2.3: Quality control at laboratory (PROC 15)

3.4.1. Conditions of use scenario 2.3

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• General ventilation: Basic general ventilation (1-3 air changes per hour)
• Containment: No
• Local exhaust ventilation: yes [Effectiveness Inhal: 90%]
• Local exhaust ventilation (for dermal): yes [Effectiveness Dermal: 90%]
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Indoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: One hand face only (240 cm ²)

4. Exposure scenario 3: Use at industrial site - Use at off-shore sites

Sector of use:

SU 2b, Offshore industries (Use as lubricant for drill heads in oil/gas industry.)

Environment contributing scenario(s):

Use at industrial site ERC 4

Worker contributing scenario(s):

Closed, continuous process of drilling PROC 2

Emptying tanks with dedicated equipment PROC 8b

Quality control at laboratory PROC 15

Description of the activities and technical processes covered in the exposure scenario:

- The substance is used as a lubricant in off-shore drilling as part of the production of gas and oil.
- Formulated products containing the substance should be shipped offshore using offshore tanks as sealed units with pressure release valves in case of rising temperatures and vacuum breakers for decreasing temperatures.
- The vacuum breakers should also be used for emptying the tanks of their contents and to ensure no exposure during the process. The couplings should be of the dry type.
- Should there be any spillage of the material during the coupling/decoupling process then this must be collected in a bund, which complies with national regulations. Products containing the substance should be applied to the process using a closed injection system.
- The overwhelming majority of the substance will be exported with the crude but some may partition to the water phase where it could be re-injected into the formation or discharged overboard. Quality control at laboratory may be performed. In the laboratory handling within fume cupboards or equivalent is required.

Explanation on the approach taken for the ES

- Transportation occurs in sealed tanks with dedicated equipment that allows for emptying them without risk of exposure during the process.
- Application of the liquid containing the substance to the drilling process occurs in a closed system under controlled conditions.
- The overwhelming majority of the substance will be exported with the crude but some may partition to the water phase where it could be re-injected into the formation or discharged overboard. This amount is estimated to correspond with 7% of the daily amount (see section 4.1.1.).

4.1. Environmental contributing scenario 3: Use at industrial site

4.1.1. Conditions of use scenario 3

Amount used, frequency and duration of use (or from service life)
<ul style="list-style-type: none">• Daily use at site: ≤ 0.342 tonnes/day <i>For water releases, a typical well is assumed in which 410 m³ (OGP Report No. 342) of rock are removed (at 2.5 tonnes/m³), based on the $\leq 1\%$ (by weight) return on cuttings legislation (OSPAR 00/20/1-E, Annex 18), this would result in a maximum of 10.25 tonnes of solvent released per well. Typical minimal drilling time per well is 30 days (OGP Report No. 342). This is equivalent to a discharge of 0.342 tonnes (fluid)/day to marine water. With an assumed total use of 5 tonnes fluid/day this translates to a water release of $<7\%$. Marine dilution assumed to be 1000. Release to soil not applicable.</i>
<ul style="list-style-type: none">• Annual use at a site: ≤ 17.5 tonnes/year
<ul style="list-style-type: none">• Percentage of tonnage used at regional scale: = 100 %
Conditions and measures related to sewage treatment plant
<ul style="list-style-type: none">• Municipal STP: No [Effectiveness Water: 0%] <i>Not applicable, application is at off-shore sites.</i>
Conditions and measures related to treatment of waste (including article waste)
<ul style="list-style-type: none">• Particular considerations on the waste treatment operations: No (low risk) (ERC based assessment demonstrating control of risk with default conditions. Low risk assumed for waste life stage. Waste disposal according to national/local legislation is sufficient.)
Other conditions affecting environmental exposure
<ul style="list-style-type: none">• Discharge rate of effluent: ≥ 0 m³/d <i>Not applicable, substance is use as a lubricant in off-shore productions.</i>
<ul style="list-style-type: none">• Receiving surface water flow rate: ≥ 0 m³/d <i>Not applicable, substance is used in off-shore productions.</i>

4.2. Worker contributing scenario 3.1: Closed, continuous process of drilling (PROC 2)

4.2.1. Conditions of use scenario 3.1

Product (article) characteristics
<ul style="list-style-type: none">• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
<ul style="list-style-type: none">• Duration of activity: < 8 hours
Technical and organisational conditions and measures
<ul style="list-style-type: none">• Containment: Closed continuous process with occasional controlled exposure• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
<ul style="list-style-type: none">• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
<ul style="list-style-type: none">• Place of use: Outdoor• Process temperature (for liquid): ≤ 40 °C• Skin surface potentially exposed: Two hands face (480 cm²)

4.3. Worker contributing scenario 3.2: Emptying tanks with dedicated equipment (PROC 8b)

4.3.1. Conditions of use scenario 3.2

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• Containment: Semi-closed process with occasional controlled exposure
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374 with specific activity training) [Effectiveness Dermal: 95%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Outdoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: Two hands (960 cm ²)

4.4. Worker contributing scenario 3.3: Quality control at laboratory (PROC 15)

4.4.1. Conditions of use scenario 3.3

Product (article) characteristics
• Concentration of substance in mixture: Substance as such
Amount used (or contained in articles), frequency and duration of use/exposure
• Duration of activity: < 8 hours
Technical and organisational conditions and measures
• Containment: No
• Occupational Health and Safety Management System: Advanced
Conditions and measures related to personal protection, hygiene and health evaluation
• Dermal Protection: Yes (chemically resistant gloves conforming to EN374) [Effectiveness Dermal: 80%]
• Respiratory Protection: No [Effectiveness Inhal: 0%]
Other conditions affecting workers exposure
• Place of use: Outdoor
• Process temperature (for liquid): <= 40 °C
• Skin surface potentially exposed: One hand face only (240 cm ²)