

SAFETY DATA SHEET

11 October 2026 | Released for professional use. Prepared in accordance with REACH Annex II as amended by Regulation (EU) 2020/878. Classification is based on the finished formulation and current supplier safety data for the unsaturated-ester carrier and PTFE components.

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

1.1 Product identifier. Product name: AddVation ST FS Seal Core UE-Bio. Product type: mixture. UFI: not required for the current non-hazardous classification under CLP.

1.2 Relevant identified uses and uses advised against. Identified use: professional additive for controlled treatment of leakage at stern tube face-seal interfaces in compatible unsaturated-ester-based lubricant systems, subject to the approved Vessel Treatment Plan. Uses advised against: use where the installed lubricant or connected circuit has not been identified and approved, or use outside the Vessel Treatment Plan.

1.3 Details of the supplier of the safety data sheet. AddVation ApS Ellesøpark 25, 2950 Vedbæk, Denmark. E-mail: info@addvation.com. Website: www.addvation.com. Telephone: +45 50 181 182.

1.4 Emergency telephone number. Denmark Poison Information Centre (Giftlinjen): +45 82 12 12 12, available 24 hours. For life-threatening emergencies call 112.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture. Classification according to Regulation (EC) No 1272/2008 [CLP]: Not classified. Based on available component data and the finished formulation, the classification criteria for physical, health and environmental hazards are not met.

2.2 Label elements. Signal word: none. Hazard pictograms: none. Hazard statements: none. Precautionary statements: not required under CLP for the current classification. Supplemental information: Safety data sheet available on request.

2.3 Other hazards. Spilled product can create a serious slip hazard. Excessive heating or thermal decomposition of PTFE may release toxic fluorinated fumes and may cause polymer fume fever. Based on available supplier information, the mixture does not contain substances assessed as PBT or vPvB at $\geq 0.1\%$ and no endocrine-disrupting substance has been identified at $\geq 0.1\%$.

SECTION 3: Composition/information on ingredients

3.2 Mixtures. PTFE dispersion in an unsaturated synthetic ester-based lubricant carrier. The carrier used for this formulation is TotalEnergies BIOHYDRAN TMP 46 or an approved equivalent unsaturated-ester carrier. The substances below are disclosed from current carrier/component supplier information.

PTFE (polytetrafluoroethylene). CAS 9002-84-0. Micronised solid lubricant dispersed in the carrier. Not classified as hazardous under CLP in the supplied form. Concentration is formulation-controlled and proprietary.

Unsaturated-ester carrier. Synthetic ester lubricant. Reportable carrier constituents include: reaction mass of isomers of C7-9-alkyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate, CAS 125643-61-0, $\leq 3\%$ (upper bound in finished mixture), Aquatic Chronic 4, H413; and Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene, CAS 68411-46-1, $\leq 0.3\%$ (upper bound in finished mixture), Repr. 2, H361f. These concentrations do not result in classification of the finished mixture.

SECTION 4: First aid measures

4.1 Description of first aid measures. Inhalation: move to fresh air and obtain medical advice if symptoms occur. Skin: remove contaminated clothing and wash with soap and water. Eyes: rinse cautiously with water for at least 15 minutes; seek advice if irritation persists. Ingestion: rinse mouth; do not induce vomiting; obtain medical advice if unwell.

4.2 Most important symptoms and effects, both acute and delayed. Repeated skin contact may cause dryness or irritation. Eye contact may cause temporary irritation. Fumes from excessive heating may cause delayed flu-like symptoms associated with polymer fume fever.

4.3 Indication of immediate medical attention and special treatment needed. Treat symptomatically. Following suspected exposure to thermal decomposition fumes, medical observation should consider the possibility of delayed polymer fume fever.

SECTION 5: Firefighting measures

5.1 Extinguishing media. Suitable media: water spray, foam, dry chemical powder or carbon dioxide. Avoid a direct high-pressure water jet where it could spread burning oil.

5.2 Special hazards arising from the substance or mixture. The oil-containing mixture may burn. Fire or excessive heating may generate hydrogen fluoride, carbonyl fluoride, carbon monoxide, carbon dioxide, smoke and other toxic or irritating fluorinated fumes.

5.3 Advice for firefighters. Use positive-pressure self-contained breathing apparatus and full protective equipment. Cool exposed containers with water spray where safe.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures. Restrict access, ventilate the area, avoid contact and prevent slipping. Wear suitable gloves, eye protection and workwear. Respiratory protection may be required if oil mist, aerosol or decomposition fumes are present.

6.2 Environmental precautions. Prevent entry into drains, surface water, groundwater and soil. Avoid unnecessary release to the environment.

6.3 Methods and material for containment and cleaning up. Stop and contain the spill where safe. Collect mechanically or with inert absorbent material and place in a suitable labelled container. Avoid methods that create aerosol or disperse material. Clean residual slippery film using an appropriate industrial method.

6.4 Reference to other sections. See Section 8 for personal protection and Section 13 for disposal considerations.

SECTION 7: Handling and storage

7.1 Precautions for safe handling. Use good industrial hygiene. Avoid eye and prolonged skin contact, mist formation and environmental release. Keep containers closed. Do not overheat. Do not eat, drink or smoke while handling. Keep product off tobacco, smoking materials and food; PTFE contamination may generate hazardous fumes when heated.

7.2 Conditions for safe storage, including any incompatibilities. Store in the tightly closed original container in a dry, well-ventilated area. Protect from contamination, direct sunlight, excessive heat and moisture. Keep away from strong oxidising agents.

7.3 Specific end use(s). Controlled treatment of stern tube face-seal leakage in approved unsaturated-ester lubricant systems. Identify the installed oil and all connected volumes before treatment. Follow the Application Guide and approved Vessel Treatment Plan for mixing, dosing and monitoring.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters. No specific occupational exposure limit has been established for the finished mixture. Where oil mist may be generated, apply applicable national occupational exposure limits. DNEL/PNEC values for reportable carrier constituents are available in the carrier supplier SDS and should be considered in task-specific risk assessment.

8.2 Exposure controls. Provide ventilation where mist or aerosol may form. Wear safety glasses where splash risk exists and suitable chemical-resistant gloves; select glove material and replacement interval using supplier permeation data and the task assessment. Wear protective workwear. Select respiratory protection where ventilation is insufficient. For fire or unknown decomposition-fume exposure, trained responders require self-contained breathing apparatus.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties. Finished-mixture values are stated where available; carrier-only reference values are identified as such. Unless otherwise stated, values are not specifications.

Property	Current value / status
Physical state	Viscous suspension / paste at 20 °C
Colour	White to off-white
Odour	Mild, characteristic oil-like odour (expected)
Melting point / freezing point	Not determined; no finished-mixture test data
Boiling point or initial boiling point and boiling range	Mixture not tested; carrier: >300 °C (ISO 3405)
Flammability	Not classified as flammable; oil-containing mixture may burn
Lower and upper explosion limit	Not determined; no mixture flammability-limit data
Flash point	Carrier: >280 °C, open cup (COC); finished mixture not expected lower
Auto-ignition temperature	Carrier: >300 °C (ASTM E 659)
Decomposition temperature	Onset not determined; overheating may release toxic PTFE fumes
pH	Not applicable: non-aqueous mixture
Kinematic viscosity	Finished mixture not applicable as a conventional liquid; carrier: 46 mm ² /s at 40 °C
Solubility	Practically insoluble in water (component-based estimate)
Partition coefficient n-octanol/water	Not determined; no single mixture log Kow available
Vapour pressure	Low; carrier supplier data indicate negligible vapour pressure at ambient temperature
Density	Approx. 1.29 kg/L at 20 °C (formulation calculation)
Relative vapour density	Mixture not tested; carrier vapour: >2 (air = 1)
Particle characteristics	Micronised PTFE dispersed in oil; no free powder supplied

9.2 Other information. Density is a formulation calculation and may vary slightly with batch, temperature and entrained air. Carrier-only values are reference data and do not constitute measured properties of the finished mixture.

SECTION 10: Stability and reactivity

10.1 Reactivity. No mixture test data available. Avoid incompatible materials and excessive heating.

10.2 Chemical stability. Expected to be stable under recommended handling and storage conditions, based on component information.

10.3 Possibility of hazardous reactions. None expected under normal use, based on component information.

10.4 Conditions to avoid. Excessive heat, direct sunlight, ignition sources under abnormal conditions and contamination.

10.5 Incompatible materials. Strong oxidising agents.

10.6 Hazardous decomposition products. Fire or excessive heating may produce hydrogen fluoride, carbonyl fluoride, carbon monoxide, carbon dioxide and other irritating or toxic fluorinated fumes.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008. No toxicological tests have been performed on the finished mixture. Based on available component data and concentrations, the classification criteria are not met for acute toxicity, skin corrosion/irritation, serious eye damage/irritation, respiratory or skin sensitisation, germ cell mutagenicity, carcinogenicity, reproductive toxicity, STOT single/repeated exposure or aspiration hazard. Prolonged skin contact may cause dryness or irritation. Excessive heating of PTFE may generate fumes capable of causing delayed polymer fume fever.

11.2 Information on other hazards. Based on current supplier information, no endocrine-disrupting substance has been identified in the mixture at a concentration $\geq 0.1\%$.

SECTION 12: Ecological information

12.1 Toxicity. No finished-mixture aquatic or terrestrial toxicity tests are available. Based on component data and concentrations, the mixture is not classified as hazardous to the aquatic environment under CLP.

12.2 Persistence and degradability. The unsaturated synthetic ester carrier is described by its supplier as biodegradable. PTFE is highly persistent. Biodegradability or EAL status of the finished AddVation mixture has not been established and must not be inferred solely from the carrier.

12.3 Bioaccumulative potential. No finished-mixture data are available. Component information does not result in classification of the mixture for aquatic hazards.

12.4 Mobility in soil. Not tested for the mixture. Low water solubility is expected from component information. Prevent release to soil and sediment.

12.5 Results of PBT and vPvB assessment. Based on available supplier information, the mixture does not contain substances assessed as PBT or vPvB at concentrations $\geq 0.1\%$.

12.6 Endocrine-disrupting properties. Based on available supplier information, no endocrine-disrupting substance has been identified at a concentration $\geq 0.1\%$.

12.7 Other adverse effects. Prevent entry into drains, waterways and soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods. Do not discharge to drains or waterways. Dispose of product, spill residues, contaminated absorbent and packaging through an authorised waste contractor in accordance with applicable requirements. Assign the waste code according to use and waste origin.

SECTION 14: Transport information

14.1 UN number or ID number	Not regulated under ADR/RID, ADN, IMDG or ICAO/IATA
14.2 UN proper shipping name	Not applicable
14.3 Transport hazard class(es)	Not applicable
14.4 Packing group	Not applicable
14.5 Environmental hazards	No. Not classified as environmentally hazardous for transport; not a marine pollutant under IMDG.
14.6 Special precautions for user	Transport in closed, upright and secured containers. Prevent container damage, leakage and environmental release. Personnel handling transport should know the spill response procedure.
14.7 Maritime transport in bulk according to IMO instruments	Not intended for transport in bulk

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture. Prepared under REACH Regulation (EC) No 1907/2006, Annex II as amended by Regulation (EU) 2020/878, and CLP Regulation (EC) No 1272/2008 as amended. The finished mixture is not classified as hazardous under CLP. No formulation-specific REACH Annex XIV, SVHC or Seveso restriction has been identified from current component supplier information.

15.2 Chemical safety assessment. No chemical safety assessment has been carried out for the finished mixture.

SECTION 16: Other information

16.1 Revision status. Rev. 04, 20 October 2026. Supersedes Rev. 03 DRAFT. Updated finished-mixture classification, carrier constituent disclosure, toxicological/ecological conclusions, regulatory status and transport classification for customer release.

16.2 Abbreviations. ADR/RID: road/rail dangerous-goods transport; CLP: Classification, Labelling and Packaging; DNEL: derived no-effect level; EAL: environmentally acceptable lubricant; IATA: International Air Transport Association; IMDG: International Maritime Dangerous Goods; PBT: persistent, bioaccumulative and toxic; PNEC: predicted no-effect concentration; PTFE: polytetrafluoroethylene; REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals; STOT: specific target organ toxicity; UFI: unique formula identifier; vPvB: very persistent and very bioaccumulative.

16.3 Data sources. TotalEnergies BIOHYDRAN TMP 46 technical data; carrier supplier SDS no. 32891, Version 2, 19 September 2022; PTFE supplier MSDS, 10 February 2025; AddVation finished-formulation data. ABCON MARINE-STERN TUBE BUCSL SDS was reviewed as an industry analogue for format and transport presentation only and was not used as a substitute for AddVation component classification data. Carrier-only and calculated values are identified in Section 9.

16.4 Classification method. Classification is based on the calculation/bridging principles of Regulation (EC) No 1272/2008 using current component classifications and the finished formulation. The mixture is not classified as hazardous under CLP. Transport status is based on current component information and applicable ADR/RID, ADN, IMDG and ICAO/IATA criteria.