

**HFO-1234yf POE 68, Universal compressor oil,
236 mL**

Version 2.0	Revision Date: 05/10/2023	SDS Number: 7945968-00004	Date of last issue: 09/22/2022 Date of first issue: 03/17/2021
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SECTION 1. IDENTIFICATION

Product name : HFO-1234yf POE 68, Universal compressor oil, 236 mL
Product code : 892.764830
Other means of identification : No data available

Manufacturer or supplier's details

Company name of supplier : Würth Canada Limited
Address : 345 Hanlon Creek Blvd
GUELPH, ON N1C 0A1
Telephone : +1 (905) 564 6225
Telefax : +1 (905) 564 3671
Emergency telephone : Emergencies involving a spill, fire, explosion or exposure:
CHEMTREC (24/7): 1-800-424-9300
Transport related emergencies:
CANUTEC (24/7): 1-613-996-6666 or * 666 (cell)

Urgences impliquant un déversement, incendie, explosion ou exposition:
CHEMTREC (24/7): 1-800-424-9300
Urgences liées au transport:
CANUTEC (24/7): 1-613-996-6666 ou * 666 (cellulaire)

E-mail address : prodsafe@wurth.ca

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant

Restrictions on use : Not applicable

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with the Hazardous Products Regulations**



Skin sensitization : Sub-category 1A

Reproductive toxicity : Category 2

GHS label elements

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Hazard pictograms	:	 
Signal Word	:	Warning
Hazard Statements	:	H317 May cause an allergic skin reaction. H361f Suspected of damaging fertility.
Precautionary Statements	:	<p>Prevention:</p> <p>P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P261 Avoid breathing mist or vapors. P272 Contaminated work clothing should not be allowed out of the workplace. P280 Wear protective gloves, protective clothing, eye protection and face protection.</p> <p>Response:</p> <p>P302 + P352 IF ON SKIN: Wash with plenty of water. P308 + P313 IF exposed or concerned: Get medical attention. P333 + P313 If skin irritation or rash occurs: Get medical attention. P362 + P364 Take off contaminated clothing and wash it before reuse.</p> <p>Storage:</p> <p>P405 Store locked up.</p> <p>Disposal:</p> <p>P501 Dispose of contents and container to an approved waste disposal plant.</p>

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
[[2-Ethylhexyl)oxy)methyl]oxirane	2-Ethylhexyl glycidyl ether	2461-15-6	$\geq 1 - < 5$ *
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	4-(2,2,3-Trimethylbut-3-en-1-yl)-N-[4-(2,2,3-	68411-46-1	$\geq 0.1 - < 1$ *

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	trimethylbut-3-en-1-yl)phenyl]aniline		
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|| * Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- || If inhaled : If inhaled, remove to fresh air.
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.
- || If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.
- || Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
Suspected of damaging fertility.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion prod- : Carbon oxides

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- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g., by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
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SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Avoid breathing mist or vapors.
Do not swallow.
Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure as-

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- assessment
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures** : Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

- Filter type : Organic vapor Type

Hand protection

- Material : Nitrile rubber
Break through time : 240 min
Glove thickness : 1.2 mm

- Remarks : Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

- Eye protection : Wear the following personal protective equipment:
Safety glasses

- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.

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When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the
workplace.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	Colorless to pale yellow
Odor	:	characteristic
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Pour point	:	-30 °C Method: ASTM D 97-66
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	0.976 (25 °C)
Density	:	No data available
Solubility(ies)	:	

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Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, kinematic	:	66.66 cSt (40 °C)
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Can react with strong oxidizing agents.
Conditions to avoid	:	None known.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure**

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

|| Not classified based on available information.

Components:**[[(2-Ethylhexyl)oxy]methyl]oxirane:**

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat): > 0.15 mg/l

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Exposure time: 7 h
Test atmosphere: vapor
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Components:**[(2-Ethylhexyl)oxy]methyl]oxirane:**

Species : Rabbit
Result : Skin irritation

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Mild skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:**[(2-Ethylhexyl)oxy]methyl]oxirane:**

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Respiratory or skin sensitization**Skin sensitization**

May cause an allergic skin reaction.

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Respiratory sensitization

|| Not classified based on available information.

Components:**[[[(2-Ethylhexyl)oxy]methyl]oxirane:**

Test Type : Maurer optimisation test
Routes of exposure : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : positive

Assessment : Probability or evidence of high skin sensitization rate in humans

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

|| Test Type : Maximization Test
|| Routes of exposure : Skin contact
|| Species : Guinea pig
|| Method : OECD Test Guideline 406
|| Result : negative

Germ cell mutagenicity

|| Not classified based on available information.

Components:**[[[(2-Ethylhexyl)oxy]methyl]oxirane:**

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

|| Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Carcinogenicity

|| Not classified based on available information.

Reproductive toxicity

|| Suspected of damaging fertility.

Components:**Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:**

|| Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat

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Application Route: Ingestion	
Method: OECD Test Guideline 443	
Result: positive	
Effects on fetal development	: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
	Species: Rat
	Application Route: Ingestion
	Method: OECD Test Guideline 422
	Result: negative
Reproductive toxicity - Assessment	: Some evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT-single exposure

|| Not classified based on available information.

STOT-repeated exposure

|| Not classified based on available information.

Components:
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Assessment	: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
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Repeated dose toxicity
Components:
Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Species	: Rat
NOAEL	: 25 mg/kg
LOAEL	: 75 mg/kg
Application Route	: Ingestion
Exposure time	: 53 Days
Method	: OECD Test Guideline 422

Aspiration toxicity

|| Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION
Ecotoxicity
Components:
[[[(2-Ethylhexyl)oxy]methyl]oxirane:

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): > 5,000 mg/l
	Exposure time: 96 h
	Method: OECD Test Guideline 203
	Remarks: Based on data from similar materials

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Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 7.2 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 51 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : NOELR (Desmodesmus subspicatus (green algae)): > 1 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

EL50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10 (Daphnia magna (Water flea)): 1.69 mg/l
Exposure time: 21 d
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 211

Persistence and degradability**Components:****[[[(2-Ethylhexyl)oxy]methyl]oxirane:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

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Bioaccumulative potential**Components:****[[[(2-Ethylhexyl)oxy]methyl]oxirane:**Partition coefficient: n-
octanol/water : log Pow: 3.83**Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene:**Partition coefficient: n-
octanol/water : log Pow: > 4
Remarks: Calculation**Mobility in soil**

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues	: Dispose of in accordance with local regulations. Do not dispose of waste into sewer.
Contaminated packaging	: Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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

Not applicable for product as supplied.

Domestic regulation**TDG**

Not regulated as a dangerous good

Special precautions for user

Not applicable

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SECTION 15. REGULATORY INFORMATION

Volatile organic compounds (VOC) content CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999 - Guidelines for VOC in Consumer Products
VOC content: 0 %

The ingredients of this product are reported in the following inventories:

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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