Safety Data Sheet

HiTEC® 4587 Fuel Additive

SDS no. H4587

Date of issue/Date of revision 11/24/2022

Section 1. Identification

GHS product identifier : HiTEC® 4587 Fuel Additive

Product use : Petrochemical industry: Fuel additive.

In case of emergency - Chemical

0800-70-77-022 (Brazil)
800-681-9531 (Mexico)
+1-703-527-3887 (International)
+1-703-741-5979 (Spanish language)
+1-800-424-9300 (US & Canada)

Manufacturer / Supplier

Afton Chemical Corporation
500 Spring St.
Richmond, VA 23219
USA

Afton Chemical Canada Corporation
5045 South Service Road
Suite 101
Burlington, ON L7L 5Y7
905-631-5470

Non-Emergency Telephone: +1-804-788-5800

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 3
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

GHS label elements

Hazard pictograms :

Signal word : Warning

Hazard statements : Flammable liquid and vapor.
May cause respiratory irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating or lighting equipment. Use non-sparking tools. Take action to prevent static discharges. Use only outdoors or in a well-ventilated area. Avoid breathing vapor.

Section 2. Hazards identification

Response : IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. In case of fire, use water spray (fog), foam, dry chemical or CO_2.

Storage : Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

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

Additional hazards : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	CAS number	Conc. (% w/w)	US GHS Classification
Alkenylacetate olefin copolymer	Proprietary	≥45 - ≤55	FLAMMABLE LIQUIDS - Category 4
Solvent naphtha (petroleum), light arom.	64742-95-6	≥45 - ≤55	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
1,2,4-trimethylbenzene	95-63-6	≥15 - ≤25	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
mesitylene	108-67-8	≥5 - ≤10	FLAMMABLE LIQUIDS - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
cumene	98-82-8	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
1,2,3-trimethylbenzene	526-73-8	≥1 - ≤3	FLAMMABLE LIQUIDS - Category

Section 3. Composition/information on ingredients

			3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
xylene	1330-20-7	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1
cymene	25155-15-1	≥0.5 - <1	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION - Category 2 ASPIRATION HAZARD - Category 1

Any concentration shown as a range is to protect confidentiality or is due to batch variation. If specific chemical identify is withheld, it is to protect confidentiality.

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : If inhaled, remove to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. 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. If not breathing, give artificial respiration. If breathing is difficult, administer oxygen.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 15 minutes.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO_2.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Section 5. Fire-fighting measures

Special protective actions 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1,2,4-trimethylbenzene	**ACGIH TLV (United States, 1/2022).** TWA: 10 ppm 8 hours.
mesitylene	**ACGIH TLV (United States, 1/2022).** TWA: 10 ppm 8 hours. TWA: 123 mg/m³ 8 hours.
cumene	**ACGIH TLV (United States, 1/2022).** TWA: 5 ppm 8 hours. **OSHA PEL (United States, 5/2018).** **Absorbed through skin.** TWA: 50 ppm 8 hours. TWA: 245 mg/m³ 8 hours.
1,2,3-trimethylbenzene	**ACGIH TLV (United States, 1/2022).** TWA: 10 ppm 8 hours. TWA: 123 mg/m³ 8 hours.
xylene	**ACGIH TLV (United States, 1/2022).** TWA: 20 ppm 8 hours. TWA: 434 mg/m³ 8 hours. STEL: 651 mg/m³ 15 minutes. **OSHA PEL (United States, 5/2018).** TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours.

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. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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.

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. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Hand Protection: Wear chemical resistant gloves. Nitrile gloves of minimum thickness 0.4 mm have an expected breakthrough time of 30 minutes or less when in frequent contact with the product. Due to variable exposure conditions the user must consider that the practical use of a chemical-protective glove in practice may be much shorter than the permeation time above. Manufacturer's directions for use, especially about the minimum thickness and the minimum breakthrough time, must be observed. This information does not replace suitability tests by the end user since glove protection varies depending on the conditions under which the product is used.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

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 : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Yellowish. [Light]

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: 35°C (95°F) [Pensky-Martens Minimum]

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Density : 0.911 g/cm^3

Relative density : 0.9115

Solubility(ies) : Not available.

Partition coefficient: n-octanol/water : Not applicable.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Kinematic (40°C (104°F)): 61 mm^2/s (61 cSt) Minimum

Explosive properties : Not available.

Oxidizing properties : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Result	Species	Dose	Exposure	Remarks
Alkenylacetate olefin copolymer	401 Acute Oral Toxicity	LD50 Oral	Rat	>2000 mg/kg	-	Based on data for a similar substance.
Solvent naphtha (petroleum), light arom.	403 Acute Inhalation Toxicity	LC50 Inhalation Vapor	Rat	>6193 mg/m³	4 hours	-
	402 Acute Dermal Toxicity	LD50 Dermal	Rabbit	>3160 mg/kg	-	-
	None available.	LD50 Oral	Rat - Female	3492 mg/kg	-	-
	None available.	LD50 Oral	Rat - Male	6984 mg/kg	-	-
1,2,4-trimethylbenzene	None available.	LC50 Inhalation Vapor	Rat	>10200 mg/m³	4 hours	Based on data for a similar substance.
	None available.	LD50 Dermal	Rat	>3440 mg/kg	-	Based on data for a similar substance.
	None available.	LD50 Oral	Rat	6000 mg/kg	-	-
mesitylene	None available.	LC50 Inhalation Vapor	Rat	>10.2 mg/l	4 hours	Based on data for a similar substance.
	None available.	LD50 Dermal	Rat	>3440 mg/kg	-	Based on data for a similar substance.
	None available.	LD50 Oral	Rat	>5000 mg/kg	-	-
cumene	None available.	LD50 Dermal	Rabbit	>10000 mg/kg	-	-
	None available.	LD50 Oral	Rat	2260 mg/kg	-	-
1,2,3-trimethylbenzene	None available.	LC50 Inhalation Vapor	Rat	24 mg/l	4 hours	-
	None available.	LD50 Oral	Rat	5000 mg/kg	-	-
xylene	403 Acute Inhalation Toxicity	LC50 Inhalation Vapor	Rat	29 mg/l	4 hours	-
	None available.	LD50 Dermal	Rabbit	12126 mg/kg	-	Based on data for a similar substance.

Section 11. Toxicological information

	None available.	LD50 Oral	Rat - Male	3523 mg/kg	-	-
cymene	None available.	LD50 Dermal	Rabbit	>5000 mg/kg	-	Based on data for a similar substance.
	None available.	LD50 Oral	Rat	4750 mg/kg	-	Based on data for a similar substance.

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Test	Species	Result	Remarks
Alkenylacetate olefin copolymer	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Not an Irritant	Based on data for a similar substance.
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Not an Irritant	Based on data for a similar substance.
Solvent naphtha (petroleum), light arom.	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Not an Irritant	-
	None available.	Rabbit	Skin - Mild irritant	-
1,2,4-trimethylbenzene	None available.	Rabbit	Skin - Irritant	Based on data for a similar substance.
mesitylene	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Irritant	Based on data for a similar substance.
	None available.	Rabbit	Skin - Irritant	-
cumene	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Not an Irritant	-
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Not an Irritant	-
xylene	None available.	Rabbit	Eyes - Irritant	-
	None available.	Rabbit	Skin - Irritant	-
cymene	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Irritant	Based on data for a similar substance.
	None available.	Rabbit	Skin - Irritant	Based on data for a similar substance.

Conclusion/Summary

Skin : Causes mild skin irritation.

Eyes : Not available.

Respiratory : May cause respiratory irritation.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result	Remarks
Solvent naphtha (petroleum), light arom.	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	-
1,2,4-trimethylbenzene	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
mesitylene	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
cumene	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	-
xylene	429 Skin Sensitization: Local Lymph Node Assay	skin	Mouse	Not sensitizing	-
cymene	None available.	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.

Conclusion/Summary

Skin : Not available.

Respiratory : Not available.

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result	Remarks
Solvent naphtha (petroleum), light arom.	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	-
1,2,4-trimethylbenzene	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
mesitylene	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
cumene	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	None available.	Experiment: In vitro Subject: Mammalian-Animal	Negative	-
	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Equivocal	-
1,2,3-trimethylbenzene	None available.	Experiment: In vitro Subject: Bacteria	Positive	WOE does not support classification
	None available.	Experiment: In vitro Subject: Bacteria	Negative	-
	None available.	Experiment: In vitro Subject: Mammalian-Animal	Equivocal	-
	None available.	Experiment: In vivo Subject: Mammalian-Animal	Positive	WOE does not support classification
	None available.	Experiment: In vivo Subject: Mammalian-Animal	Negative	-
xylene	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	None available.	Experiment: In vitro Subject: Mammalian-Animal	Negative	-
cymene	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	Based on data for a similar substance.
	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
	473 *In vitro* Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Human	Negative	Based on data for a similar substance.

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Test	Species	Exposure	Result	Remarks
Solvent naphtha (petroleum), light arom.	451 Carcinogenicity Studies	Rat	113 months; 5 days per week	Negative - Inhalation - NOAEL	-
cumene	451 Carcinogenicity Studies	Rat	105 weeks; 6 hours per day	Positive - Inhalation - TC	-
xylene	None available.	Rat	103 weeks; 5 days per week	Negative - Oral - NOAEL	-

Conclusion/Summary : Suspected of causing cancer.

Classification

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
cumene	-	2B	Reasonably anticipated to be a human carcinogen.
xylene	-	3	-

Reproductive toxicity

Product/ingredient name	Test	Route of exposure	Species	Maternal toxicity	Fertility	Development toxin	Remarks
Alkenylacetate olefin copolymer	421 Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Negative	Negative	Negative	Based on data for a similar substance.
Solvent naphtha (petroleum), light arom.	None available.	Inhalation	Rat	Negative	Negative	Negative	-
1,2,4-trimethylbenzene	416 Two-Generation Reproduction Toxicity Study	Inhalation	Rat	Positive	Negative	Negative	Based on data for a similar substance.
mesitylene	416 Two-Generation Reproduction Toxicity Study	Inhalation	Rat	Positive	Negative	Negative	Based on data for a similar substance.
cumene	413 Subchronic Inhalation Toxicity: 90-day Study	Inhalation	Rat	Positive	Negative	Negative	-
1,2,3-trimethylbenzene	None available.	Inhalation	Rat	-	Equivocal	Equivocal	-
xylene	None available.	Inhalation	Rat - Male	Positive	Equivocal	Negative	WOE does not support classification
cymene	422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Positive	Positive	Positive	Based on data for a similar substance.

Conclusion/Summary : Not available.

Teratogenicity

Product/ingredient name	Test	Species	Result	Remarks
Solvent naphtha (petroleum), light arom.	None available.	Rabbit	Negative - Inhalation	Based on data for a similar substance.
	None available.	Rat	Negative - Inhalation	Based on data for a similar substance.
1,2,4-trimethylbenzene	414 Prenatal Developmental Toxicity Study	Rat	Negative - Inhalation	-
mesitylene	414 Prenatal Developmental Toxicity Study	Rat	Negative - Inhalation	-
cumene	414 Prenatal Developmental Toxicity Study	Rabbit	Negative - Inhalation	-
	414 Prenatal Developmental Toxicity Study	Rat	Negative - Inhalation	-
1,2,3-trimethylbenzene	None available.	Rat	Equivocal - Inhalation	Based on data for a similar substance.
xylene	414 Prenatal Developmental Toxicity Study	Rat	Negative - Inhalation	-

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Solvent naphtha (petroleum), light arom.	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
1,2,4-trimethylbenzene	Category 3	-	Respiratory tract irritation
mesitylene	Category 3	-	Respiratory tract irritation
cumene	Category 3	-	Respiratory tract irritation
1,2,3-trimethylbenzene	Category 3	-	Respiratory tract irritation
	Category 3		Narcotic effects
xylene	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
xylene	Category 2	-	-

Aspiration hazard

Solvent naphtha (petroleum), light arom.	ASPIRATION HAZARD - Category 1
1,2,4-trimethylbenzene	ASPIRATION HAZARD - Category 1
mesitylene	ASPIRATION HAZARD - Category 1
cumene	ASPIRATION HAZARD - Category 1
1,2,3-trimethylbenzene	ASPIRATION HAZARD - Category 1
xylene	ASPIRATION HAZARD - Category 1
cymene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Skin, Eyes, Ingestion, and Inhalation

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. May cause respiratory irritation.

Skin contact : No known significant effects or critical hazards.

Ingestion : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Test	Species	Dose	Exposure	Result	Remarks
Alkenylacetate olefin copolymer	None available.	Rat	8000 mg/kg	-	Sub-chronic NOAEL Oral	Based on data for a similar substance.
Solvent naphtha (petroleum), light arom.	None available.	Rat	353 ppm	13 weeks; 6 hours per day	Sub-chronic LOAEL Inhalation Vapor	-
	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	600 mg/kg	-	Sub-chronic NOAEL Oral	Based on data for a similar substance.
	452 Chronic Toxicity Studies	Rat	900 mg/m³	12 months; 6 hours per day	Chronic NOAEL Inhalation Vapor	-
1,2,4-trimethylbenzene	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	600 mg/kg	-	Sub-chronic NOAEL Oral	Based on data for a similar substance.
	452 Chronic Toxicity Studies	Rat	1800 mg/m³	12 months	Chronic NOAEL Inhalation Vapor	Based on data for a similar substance.
mesitylene	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	600 mg/kg	-	Sub-chronic NOAEL Oral	-
	413 Subchronic Inhalation Toxicity: 90-day Study	Rat	1.23 mg/l	3 months	Sub-chronic NOAEL Inhalation Vapor	Based on data for a similar substance.
cumene	None available.	Rat	535.8 mg/kg	-	Sub-chronic NOAEL Oral	-
	413 Subchronic Inhalation Toxicity: 90-day Study	Rat	125 ppm	90 days	Sub-chronic NOAEL Inhalation Vapor	-
1,2,3-trimethylbenzene	None available.	Rat	25 ppm	4 weeks	Sub-acute LOAEL Inhalation Vapor	-
	None available.	Rat	30 mg/kg	28 days	Sub-acute NOAEL Oral	-
	None available.	Rat	123 mg/m³	3 months	Sub-chronic NOAEL Inhalation Vapor	-
xylene	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	150 mg/kg	-	Sub-chronic LOAEL Oral	-
	None available.	Rat	3.5 mg/l	13 weeks	Sub-chronic NOAEL Inhalation Vapor	-

Section 11. Toxicological information

cymene	422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Rat	50 mg/kg	-	Sub-acute NOAEL Oral	Based on data for a similar substance.
	None available.	Rat	1.23 mg/l	4 weeks; 6 hours per day	Sub-acute NOAEL Inhalation Vapor	Based on data for a similar substance.

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

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Toxicity

Product/ingredient name	Result	Species	Exposure	Remarks
Alkenylacetate olefin copolymer	Acute EC50 12.7 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	Based on data for a similar substance.
	Acute EC50 12.6 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar substance.
	Chronic NOEC 5.96 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	Based on data for a similar substance.
	Chronic NOEC 0.551 mg/l	Fish - Pimephales promelas	34 days	Based on data for a similar substance.
Solvent naphtha (petroleum), light arom.	Acute EL50 3.1 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	-
	Acute EL50 4.5 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar substance.
	Acute LL50 8.2 mg/l	Fish - Pimephales promelas	96 hours	Based on data for a similar substance.
	Chronic NOEC 0.4 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEL 0.5 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	-
	Chronic NOEL 2.6 mg/l	Fish - Pimephales promelas	14 days	Based on data for a similar substance.
1,2,4-trimethylbenzene	Acute LC50 3.6 mg/l	Daphnia - Daphnia magna	48 hours	-
	Acute LC50 7.72 mg/l	Fish - Pimephales promelas	96 hours	-
mesitylene	Acute EC50 53 mg/l	Algae - Desmodesmus subspicatus	48 hours	-

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	Acute LC50 6 mg/l	Crustaceans - Daphnia magna	48 hours	-
	Acute LC50 12.52 mg/l	Fish - Carassius auratus	96 hours	-
	Chronic EC10 16 mg/l	Algae - Desmodesmus subspicatus	48 hours	-
	Chronic NOEC 0.4 mg/l	Crustaceans - Daphnia magna	21 days	-
cumene	EC50 >2000 mg/l	Micro-organism	3 hours	-
	Acute EC50 2.01 mg/l	Algae - Desmodesmus subspicatus	72 hours	-
	Acute EC50 2.14 mg/l	Crustaceans - Daphnia magna	48 hours	-
	Acute EC50 10.6 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours	-
	Acute LC50 4.8 mg/l	Fish - Oncorhynchus mykiss	96 hours	-
	Chronic EC10 1.35 mg/l	Algae - Desmodesmus subspicatus	72 hours	-
	Chronic NOEC 0.35 mg/l	Crustaceans - Daphnia magna	21 days	QSAR result.
	Chronic NOEC 0.38 mg/l	Fish - D. rerio and P. promelas	28 days	QSAR result.
1,2,3-trimethylbenzene	Acute EC50 4.4 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	-
	Acute EC50 2.7 mg/l	Daphnia - Daphnia magna	48 hours	-
	Acute LC50 7.8 mg/l	Fish - Oryzias latipes	96 hours	-
	Chronic NOEC 1.9 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	-
xylene	EL50 >157 mg/l	Micro-organism	3 hours	Based on data for a similar substance.
	Acute EC50 4.36 mg/l	Algae - Pseudokirchneriella subcapitata	73 hours	Based on data for a similar substance.
	Acute EC50 >3.4 mg/l	Crustaceans - Ceriodaphnia dubia	48 hours	Based on data for a similar substance.
	Acute LC50 2.6 mg/l	Fish - Oncorhynchus mykiss	96 hours	Based on data for a similar substance.
	Chronic EC10 1.9 mg/l	Algae - Pseudokirchneriella subcapitata	73 hours	Based on data for a similar substance.
	Chronic EC10 1.91 mg/l	Crustaceans - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEC >1.3 mg/l	Fish - Oncorhynchus mykiss	56 days	-
cymene	Acute EC50 5.8 mg/l	Algae	72 hours	Based upon data for a similar product.
	Acute EC50 1.9 mg/l	Daphnia	48 hours	Based on data for a similar substance.
	Acute LC50 2 mg/l	Fish	96 hours	Based on data for a similar substance.
	Chronic NOEC 0.48 mg/l	Algae	72 hours	Based on data for a similar substance.
	Chronic NOEC 0.46 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEC 0.69 mg/l	Fish	-	Based on data for a similar

Section 12. Ecological information

				substance.

Conclusion/Summary : Toxic to aquatic life with long lasting effects.

Persistence and degradability

Product/ingredient name	Test	Result	Remarks
Alkenylacetate olefin copolymer	OECD 301C Ready Biodegradability - Modified MITI Test (I)	82 to 98 % - Readily - 14 days	Based on data for a similar substance.
mesitylene	-	42 % - Not readily - 28 days	-
cumene	-	70 % - Readily - 20 days	-
1,2,3-trimethylbenzene	-	42 % - Not readily - 28 days	Based on data for a similar substance.
xylene	OECD 301F Ready Biodegradability - Manometric Respirometry Test	87.8 % - Readily - 28 days	Based on data for a similar substance.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Solvent naphtha (petroleum), light arom.	-	10 to 2500	high
1,2,4-trimethylbenzene	3.63	243	low
mesitylene	3.42	161	low
cumene	3.55	35.48	low
1,2,3-trimethylbenzene	3.66	194.98	low
xylene	3.12	8.1 to 25.9	low
cymene	4.1	-	high

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Cumene (I)	98-82-8	Listed	U055
Xylene	1330-20-7	Listed	U239

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	NA1993	UN1993	UN1993	UN1993
UN proper shipping name	Combustible liquid, n. o.s. (Solvent naphtha, Trimethylbenzenes)	FLAMMABLE LIQUID, N.O.S. (Solvent naphtha, Trimethylbenzenes) Marine pollutant	FLAMMABLE LIQUID, N.O.S. (Solvent naphtha, Trimethylbenzenes) Marine pollutant	FLAMMABLE LIQUID, N.O.S. (Solvent naphtha, Trimethylbenzenes)
Transport hazard class(es)	Combustible liquid.	3 	3 	3 
Packing group	III	III	III	III
Environmental hazards	No.	Yes.	Yes.	Yes.

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.

Transport in bulk according to IMO instruments : Not available.

Notice to reader : The above transport information is provided to assist in the proper classification of this product and may not be suitable for all shipping conditions.

Section 15. Regulatory information

U.S. Federal regulations

United States - TSCA Section 5

TSCA 5(a)2 final significant new use rules

None of the components are listed.

TSCA 5(a)2 proposed significant new use rules

None of the components are listed.

TSCA 5(e) substance consent order

None of the components are listed.

United States - TSCA Section 6

TSCA 6 final risk management

None of the components are listed.

United States - TSCA 12(b) - Chemical export notification

Name on list | Status | Ref. number

None of the components are listed.

SARA 302/304

Composition/information on ingredients

			SARA 302 TPQ		SARA 304 RQ	
Name	**%**	**EHS**	**(lbs)**	**(gallons)**	**(lbs)**	**(gallons)**
vinyl acetate	<0.1	Yes.	1000	129	5000	644.8

SARA 304 RQ : 5121901.2 lbs / 2325343.2 kg [674303.7 gal / 2552517.2 L]

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CERCLA : CERCLA: Hazardous substances.: cumene: 5000 lbs. (2270 kg); benzene: 10 lbs. (4.54 kg); xylene: 100 lbs. (45.4 kg); vinyl acetate: 5000 lbs. (2270 kg);

SARA 311/312

Classification : FLAMMABLE LIQUIDS - Category 3
CARCINOGENICITY - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3

Composition/information on ingredients

Name	%	Classification
Alkenylacetate olefin copolymer	≥45 - ≤55	FLAMMABLE LIQUIDS - Category 4
Solvent naphtha (petroleum), light arom.	≥45 - ≤55	FLAMMABLE LIQUIDS - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
1,2,4-trimethylbenzene	≥15 - ≤25	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
mesitylene	≥5 - ≤10	FLAMMABLE LIQUIDS - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
cumene	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 ASPIRATION HAZARD - Category 1
1,2,3-trimethylbenzene	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1
xylene	≥1 - ≤3	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ASPIRATION HAZARD - Category 1
cymene	≥0.5 - <1	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION - Category 2 ASPIRATION HAZARD - Category 1

Section 15. Regulatory information

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	1,2,4-trimethylbenzene cumene xylene	95-63-6 98-82-8 1330-20-7	≥15 - ≤25 ≥1 - ≤3 ≥1 - ≤3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State - California Prop. 65

⚠ **WARNING:** This product contains a chemical known to the State of California to cause cancer.
WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
cumene Benzene	≥1 - ≤3 <0.1	Yes. Yes.	No. Yes.	- Yes.	- Yes.

www.P65Warnings.ca.gov.

Canadian regulations

Canada Significant New Activity Notice : None of the components are listed.

Canadian NPRI : The following components are listed: light aromatic solvent naphtha; 1,2,4-trimethylbenzene; trimethylbenzene; cumene; trimethylbenzene; xylene (all isomers)

CEPA Toxic substances : None of the components are listed.

International Inventory Status

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.
China : At least one component is not listed.
Europe : For information on compliance with this regulation please contact your Afton representative (EHS.CustomerVolumes@AftonChemical.com).
Japan : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Switzerland : For information on compliance with this regulation please contact your Afton representative (EHS.CustomerVolumes@AftonChemical.com).
Turkey : For information on compliance with this regulation please contact your Afton representative (EHS.CustomerVolumes@AftonChemical.com).
Taiwan : All components are listed or exempted.
United Kingdom (UK) : For information on compliance with this regulation please contact your Afton representative (EHS.CustomerVolumes@AftonChemical.com).
United States Active : All components are active or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 11/24/2022
Prepared by : EHS Department (Tel: +1 804 788 5800)

Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations
WOE = Weight of Evidence

Indicates information that has changed from previously issued version.

Notice to reader

This information and these recommendations are offered in good faith and believed to be correct as of the date hereof. Information and recommendations are supplied upon the condition that the recipients will make their own decision as to safety and suitability for their purposes. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose, or of any other nature, are made with respect to the product or the information and recommendations. Afton makes no representation as to completeness or accuracy. In no event will Afton be responsible for damages of any nature whatsoever resulting from the use or reliance upon the information and recommendations.