Safety Data Sheet

HiTEC® 8703 Performance Additive

SDS no. H8703

Date of issue/Date of revision 3/27/2023

Section 1. Identification

GHS product identifier : HiTEC® 8703 Performance Additive

Product use : Petrochemical industry: Lubricating Oil 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 : SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
TOXIC TO REPRODUCTION (Fertility) - Category 1B

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Causes skin irritation.
Causes serious eye irritation.
May damage fertility.

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. Wash thoroughly after handling.

Response : IF exposed or concerned: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

Storage : Store locked up. Store in a well-ventilated place.

Disposal :

Section 2. Hazards identification

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

Additional hazards : When heated above 90°C (194°F), thermal decomposition may occur producing CO, CO2, phosphorus oxides, metal oxide/ oxides, hydrogen sulfide.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Ingredient name	CAS number	Conc. (% w/w)	US GHS Classification
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	≥15 - ≤25	Not classified.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	64742-65-0	≥10 - ≤15	ASPIRATION HAZARD - Category 1
Distillates (petroleum), solvent-refined heavy paraffinic	64741-88-4	≥5 - ≤10	Not classified.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	84605-29-8	≥5 - ≤10	SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1
Calcium long-chain alkaryl sulfonate	Proprietary	≥5 - ≤10	SKIN IRRITATION - Category 2
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	68988-45-4	≥5 - ≤7.3	SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1
phenol, (tetrapropenyl) deriva-tives	74499-35-7	≥0.3 - ≤0.5	SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 TOXIC TO REPRODUCTION (Fertility) - Category 1B

Proprietary HMIRA registration number:03471507. Exemption granted date: 16/12/2022

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 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 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. Continue to rinse for at least 15 minutes.

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. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position

Section 4. First aid measures

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 : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

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 : In a fire or if heated, a pressure increase will occur and the container may burst.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
phosphorus oxides
metal oxide/oxides
Hydrogen sulfide

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. Take precautions to limit storage vessel surface temperature to below 121°C (250°F).

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. 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. 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. 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. Avoid exposure during pregnancy. 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. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 7. Handling and storage

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.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. 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. 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.

The following information is provided for health and safety purposes. Please refer to individual product specification documents for quality-related storage and handling.
Preferred storage temperature is between ambient and 70°C.
Exposure to elevated temperatures will increase the rate of hydrogen sulfide (H2S) and mercaptan generation.
Temperatures above 90°C should be avoided unless an appropriate engineering review has been conducted on the process.

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
Distillates (petroleum), hydrotreated heavy paraffinic	**ACGIH TLV (United States, 1/2022).** TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	**ACGIH TLV (United States, 1/2022).** TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours.
Distillates (petroleum), solvent-refined heavy paraffinic	**ACGIH TLV (United States, 1/2022).** TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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 480 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.

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. [Viscous]

Color : Brown. [Dark]

Odor : Petroleum. [Slight]

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: 120°C (248°F) [Minimum Pensky-Martens]

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 : 1.014 g/cm³ [59°F (15°C)]

Relative density : 1.016

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)): 220 mm^2/s (220 cSt) Minimum 14 cSt @ 100°C

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 : High temperatures, sparks and open flames.

Incompatible materials : Strong oxidizing and reducing agents.

Hazardous decomposition products : Hydrogen sulfide

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Result	Species	Dose	Exposure	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	403 Acute Inhalation Toxicity	LC50 Inhalation Dusts and mists	Rat	>5.53 mg/l	4 hours	
	402 Acute Dermal Toxicity	LD50 Dermal	Rabbit	>5000 mg/kg	-	
	401 Acute Oral Toxicity	LD50 Oral	Rat	>5000 mg/kg	-	
Distillates (petroleum), solvent-dewaxed heavy paraffinic	403 Acute Inhalation Toxicity	LC50 Inhalation Vapor	Rat	>5.53 mg/l	4 hours	
	402 Acute Dermal Toxicity	LD50 Dermal	Rabbit	>5000 mg/kg	-	
	401 Acute Oral Toxicity	LD50 Oral	Rat	>5000 mg/kg	-	
Distillates (petroleum), solvent-refined heavy paraffinic	403 Acute Inhalation Toxicity	LC50 Inhalation Vapor	Rat	>5.53 mg/l	4 hours	
	None available.	LD50 Dermal	Rabbit	>2000 mg/kg	-	
	None available.	LD50 Oral	Rat	>5000 mg/kg	-	
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	403 Acute Inhalation Toxicity	LC50 Inhalation Vapor	Rat	>2.3 mg/l	4 hours	
	402 Acute Dermal Toxicity	LD50 Dermal	Rat	>2002 mg/kg	-	
	401 Acute Oral Toxicity	LD50 Oral	Rat	3100 mg/kg	-	
Calcium long-chain alkaryl sulfonate	402 Acute Dermal Toxicity	LD50 Dermal	Rabbit	>5000 mg/kg	-	
	401 Acute Oral Toxicity	LD50 Oral	Rat	>5000 mg/kg	-	
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	None available.	LC50 Inhalation Vapor	Rat	>2 mg/l	1 hours	
	None available.	LD50 Dermal	Rabbit	13800 mg/kg	-	
	None available.	LD50 Oral	Rat	3600 mg/kg	-	
phenol, (tetrapropenyl) derivatives	402 Acute Dermal Toxicity	LD50 Dermal	Rabbit	15000 mg/kg	-	

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	401 Acute Oral Toxicity	LD50 Oral	Rat	2200 mg/kg	-	

Conclusion/Summary : Not available.

Irritation/Corrosion

Product/ingredient name	Test	Species	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	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.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	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.
Distillates (petroleum), solvent-refined heavy paraffinic	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.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Severe irritant	Not H319 at <15%. On basis of test data. Not H318 at <20%. On basis of test data.
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Irritant	Not H315 at <15%. On basis of test data.
Calcium long-chain alkaryl sulfonate	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Not an Irritant	-
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Irritant	-
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Severe irritant	Not H319 at <15%. On basis of test data. Not H318 at <20%. On basis of test data.
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Irritant	Not H315 at <15%. On basis of test data
phenol, (tetrapropenyl) derivatives	405 Acute Eye Irritation/Corrosion	Rabbit	Eyes - Visible necrosis	-
	404 Acute Dermal Irritation/Corrosion	Rabbit	Skin - Visible necrosis	-

Conclusion/Summary

Skin : Causes skin irritation. Based on test data for this or similar products.

Eyes : Causes serious eye irritation. Based on test data for this or similar products.

Respiratory : Not available.

Sensitization

Product/ingredient name	Test	Route of exposure	Species	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	-

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Calcium long-chain alkaryl sulfonate	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	-
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	Based on data for a similar substance.
phenol, (tetrapropenyl) derivatives	406 Skin Sensitization	skin	Guinea pig	Not sensitizing	-

Conclusion/Summary

Skin : Not available.

Respiratory : Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	Based on data for a similar substance.
	473 *In vitro* Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	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.
	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	Based on data for a similar substance.
	473 *In vitro* Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	Based on data for a similar substance.
	473 *In vitro* Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Positive	WOE does not support classification
	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative	-
	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative	-
Calcium long-chain alkaryl sulfonate	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	-
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Positive	Based on data for a similar substance. WOE does not support classification
	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.
	476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Equivocal	Based on data for a similar substance. WOE does not

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				support classification
phenol, (tetrapropenyl) deriva-tives	471 Bacterial Reverse Mutation Test 476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Bacteria Experiment: In vitro Subject: Mammalian-Animal	Negative Negative	- -

Conclusion/Summary : Not available.

Carcinogenicity

Product/ingredient name	Test	Species	Exposure	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	451 Carcinogenicity Studies	Mouse	78 weeks	Negative - Dermal - NOAEL	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	451 Carcinogenicity Studies	Mouse	78 weeks	Negative - Dermal - NOAEL	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	451 Carcinogenicity Studies	Mouse	78 weeks	Negative - Dermal - NOAEL	Based on data for a similar substance.

Conclusion/Summary : Not available.

Classification

Reproductive toxicity

Product/ingredient name	Test	Route of exposure	Species	Maternal toxicity	Fertility	Development toxin	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	421 Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Negative	Negative	Negative	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	421 Reproduction/ Developmental Toxicity Screening Test	Dermal	Rat	Negative	Negative	Negative	Based on data for a similar substance.
	421 Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Negative	Negative	Negative	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	421 Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Negative	Negative	Negative	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Oral	Rat	Negative	Negative	Negative	Based on data for a similar substance.
Calcium long-chain alkaryl sulfonate	415 One-Generation Reproduction Toxicity Study	Oral	Rat	Negative	Negative	Negative	-
Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	421 Reproduction/ Developmental Toxicity Screening Test	Oral	Rat - Male	Positive	Negative	Equivocal	Based on data for a similar substance.
phenol, (tetrapropenyl) deriva-tives	416 Two-Generation Reproduction Toxicity Study	Oral	Rat	Positive	Positive	Positive	-

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Conclusion/Summary : May damage fertility.

Teratogenicity

Product/ingredient name	Test	Species	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	414 Prenatal Developmental Toxicity Study	Rat	Negative - Dermal	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	414 Prenatal Developmental Toxicity Study	Rat	Negative - Dermal	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	414 Prenatal Developmental Toxicity Study	Rat	Negative - Dermal	Based on data for a similar substance.

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Distillates (petroleum), solvent-dewaxed heavy paraffinic	ASPIRATION HAZARD - Category 1

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

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

Short term exposure

Potential immediate effects : Inhalation of oil mist or vapors at elevated temperatures may cause respiratory irritation. Ingestion may cause gastrointestinal irritation and diarrhea.

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Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Repeated or prolonged contact with the mixture may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Test	Species	Dose	Exposure	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	125 mg/kg	-	Sub-chronic LOAEL Oral	Based on data for a similar substance.
	410 Repeated Dose Dermal Toxicity: 21/28-day Study	Rabbit	1000 mg/kg	-	Sub-acute NOAEL Dermal	Based on data for a similar substance.
	411 Subchronic Dermal Toxicity: 90-day Study	Rat	30 mg/kg	-	Sub-chronic NOAEL Dermal	Based on data for a similar substance.
	None available.	Rat	0.15 mg/l	13 weeks	Sub-chronic NOAEL Inhalation Dusts and mists	Based on data for a similar substance.
	None available.	Rat	0.22 mg/l	4 weeks	Sub-chronic NOAEL Inhalation Dusts and mists	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	410 Repeated Dose Dermal Toxicity: 21/28-day Study	Rabbit	1000 mg/kg	-	Sub-acute NOAEL Dermal	Based on data for a similar substance.
	None available.	Rat	0.05 mg/l	13 weeks	Sub-chronic NOAEL Inhalation Vapor	-
Distillates (petroleum), solvent-refined heavy paraffinic	410 Repeated Dose Dermal Toxicity: 21/28-day Study	Rabbit	1000 mg/kg	-	Sub-acute NOAEL Dermal	Based on data for a similar substance.
	None available.	Rat	0.15 mg/l	13 weeks	Sub-chronic NOAEL Inhalation Vapor	Based on data for a similar substance.
	None available.	Rat	0.22 mg/l	28 days	Sub-acute NOAEL Inhalation Vapor	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	422 Combined Repeated Dose Toxicity Study with the Reproduction/ Developmental Toxicity Screening Test	Rat	160 mg/kg	-	Sub-acute NOAEL Oral	Based on data for a similar substance.
Calcium long-chain alkaryl sulfonate	410 Repeated Dose Dermal Toxicity: 21/28-day Study	Rat	1000 mg/kg	-	Sub-chronic NOAEL Dermal	-
	407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	500 mg/kg	-	Sub-chronic NOAEL Oral	-
	412 Repeated Dose Inhalation Toxicity: 28-day or 14-day	Rat	50 mg/m³	28 days	Sub-acute NOAEL Inhalation	-

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	Study				Vapor	
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	125 mg/kg	-	Sub-acute NOAEL Oral	Based on data for a similar substance.
phenol, (tetrapropenyl) derivatives	407 Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	60 mg/kg	-	Sub-acute NOAEL Oral	-
	416 Two-Generation Reproduction Toxicity Study	Rat	15 mg/kg	-	Sub-chronic NOAEL Oral	-
	408 Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	100 mg/kg	-	Sub-chronic NOAEL Oral	-

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

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 : May damage fertility.

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Toxicity

Product/ingredient name	Result	Species	Exposure	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	Acute EL50 >10000 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar substance.
	Acute LL50 >100 mg/l	Fish - Pimephales promelas	96 hours	Based on data for a similar substance.
	Chronic NOEL ≥100 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	Based on data for a similar substance.
	Chronic NOEL 10 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEL 1000 mg/l	Fish - Oncorhynchus mykiss	14 days	QSAR result.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	Acute EL50 >10000 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar substance.
	Acute LL50 >100 mg/l	Fish - Pimephales promelas	96 hours	Based on data for a similar substance.
	Chronic NOEL ≥100 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	Based on data for a similar substance.
	Chronic NOEL 10 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEL 1000 mg/l	Fish - Oncorhynchus mykiss	14 days	QSAR result.
Distillates (petroleum), solvent-refined heavy	Acute EL50 >10000 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar

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paraffinic				substance.
	Acute LL50 >100 mg/l	Fish - Pimephales promelas	96 hours	Based on data for a similar substance.
	Chronic NOEL ≥100 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	Based on data for a similar substance.
	Chronic NOEL 10 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
	Chronic NOEL 1000 mg/l	Fish - Oncorhynchus mykiss	14 days	QSAR result.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	Acute EL50 24 mg/l	Algae - Desmodesmus subspicatus	72 hours	-
	Acute EL50 23 mg/l	Daphnia - Daphnia magna	48 hours	-
	Acute EL50 >10000 mg/l	Micro-organism	3 hours	-
	Acute LL50 4.5 mg/l	Fish - Oncorhynchus mykiss	96 hours	-
	Chronic NOEC 10 mg/l	Algae - Desmodesmus subspicatus	72 hours	-
	Chronic NOEL 0.4 mg/l	Daphnia - Daphnia magna	21 days	-
Calcium long-chain alkaryl sulfonate	Acute EC50 >1000 mg/l	Daphnia	96 hours	-
	Acute EL50 >1000 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	No effects at saturation.
	Acute EL50 >10000 mg/l	Micro-organism	3 hours	Based on data for a similar substance.
	Acute LL50 >10000 mg/l	Fish - Cyprinodon variegatus	96 hours	-
	Chronic NOEL 1000 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours	No effects at saturation.
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	Acute EL50 2.1 mg/l	Algae - Selenastrum capricornutum	72 hours	Based on data for a similar substance.
	Acute EL50 5.4 mg/l	Daphnia - Daphnia magna	48 hours	Based on data for a similar substance.
	Acute EL50 >10000 mg/l	Micro-organism	3 hours	Based on data for a similar substance.
	Acute LL50 4.5 mg/l	Fish - Oncorhynchus mykiss	96 hours	Based on data for a similar substance.
	Chronic NOEL 1 mg/l	Algae - Selenastrum capricornutum	72 hours	Based on data for a similar substance.
	Chronic NOEL 0.4 mg/l	Daphnia - Daphnia magna	21 days	Based on data for a similar substance.
phenol, (tetrapropenyl) derivatives	Acute EL50 0.36 mg/l	Algae - Desmodesmus subspicatus	72 hours	-
	Acute EL50 0.037 mg/l	Daphnia - Daphnia magna	48 hours	-
	Acute EL50 >1000 mg/l	Micro-organism	3 hours	-
	Acute LL50 40 mg/l	Fish - Pimephales promelas	96 hours	-
	Chronic NOEL 0.07 mg/l	Algae - Desmodesmus subspicatus	72 hours	-

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	Chronic NOEL 0.0037 mg/l	Daphnia - Daphnia magna	21 days	-

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

Persistence and degradability

Product/ingredient name	Test	Result	Remarks
Distillates (petroleum), hydrotreated heavy paraffinic	OECD 301F Ready Biodegradability - Manometric Respirometry Test	31 % - Not readily - 28 days	Based on data for a similar substance.
Distillates (petroleum), solvent-dewaxed heavy paraffinic	OECD 301F Ready Biodegradability - Manometric Respirometry Test	31 % - Not readily - 28 days	Based on data for a similar substance.
Distillates (petroleum), solvent-refined heavy paraffinic	OECD 301F Ready Biodegradability - Manometric Respirometry Test	31 % - Not readily - 28 days	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	OECD 301B Ready Biodegradability - CO_2 Evolution Test	1.5 % - Not readily - 28 days	-
Calcium long-chain alkaryl sulfonate	OECD 301D Ready Biodegradability - Closed Bottle Test	8 % - Not readily - 28 days	Based on data for a similar substance.
Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	OECD 301B Ready Biodegradability - CO_2 Evolution Test	1.5 % - Not readily - 28 days	Based on data for a similar substance.
phenol, (tetrapropenyl) derivatives	OECD 301B Ready Biodegradability - CO_2 Evolution Test	6 to 25 % - Not readily - 28 days	-

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Distillates (petroleum), solvent-refined heavy paraffinic	3.9 to 6	-	high
Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	0.56	-	low
phenol, (tetrapropenyl) derivatives	-	289 to 1601	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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.

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

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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)**
phenol	≤0.00001	Yes.	500 / 10000	-	1000	-

SARA 304 RQ : 51317842187.4 lbs / 23298300353.1 kg [6069782852.4 gal / 22976627567.1 L]

CERCLA : CERCLA: Hazardous substances.: naphthalene: 100 lbs. (45.4 kg); toluene: 1000 lbs. (454 kg); benzene: 10 lbs. (4.54 kg); ethylbenzene: 1000 lbs. (454 kg); ethanediol: 5000 lbs. (2270 kg); Phosphorodithioic acid, mixed O,O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts: No RQ is being assigned to the generic or broad class.; Phosphorodithioic acid, mixed O,O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts: No RQ is being assigned to the generic or broad class.; 2-methylpropan-1-ol: 5000 lbs. (2270 kg); phenol: 1000 lbs. (454 kg); butan-1-ol: 5000 lbs. (2270 kg);

SARA 311/312

Classification : SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2A
TOXIC TO REPRODUCTION (Fertility) - Category 1B
HNOC - Decomposes on heating.

Composition/information on ingredients

Name	%	Classification
Distillates (petroleum), hydrotreated heavy paraffinic	≥15 - ≤25	HNOC - Static-accumulating flammable liquid
Distillates (petroleum), solvent-dewaxed heavy paraffinic	≥10 - ≤15	ASPIRATION HAZARD - Category 1 HNOC - Static-accumulating flammable liquid
Distillates (petroleum), solvent-refined heavy paraffinic	≥5 - ≤10	HNOC - Static-accumulating flammable liquid
Phosphorodithioic acid, mixed O, O-bis(1,3-dimethylbutyl and iso-Pr) esters, zinc salts	≥5 - ≤10	SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 HNOC - Decomposes on heating.
Calcium long-chain alkaryl sulfonate	≥5 - ≤10	SKIN IRRITATION - Category 2
Phosphorodithioic acid, mixed O, O-bis(2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	≥5 - ≤7.3	SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 HNOC - Decomposes on heating.
phenol, (tetrapropenyl) derivatives	≥0.3 - ≤0.5	SKIN CORROSION - Category 1C SERIOUS EYE DAMAGE - Category 1 TOXIC TO REPRODUCTION (Fertility) - Category 1B

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Phosphorodithioic acid, mixed O,O-bis (1,3-dimethylbutyl and iso-Pr) esters, zinc salts	84605-29-8	≥5 - ≤10
	Phosphorodithioic acid, mixed O,O-bis (2-ethylhexyl and iso-Bu and pentyl) esters, zinc salts	68988-45-4	≥5 - ≤7.3

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 less than 0.1% of 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.

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Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Ethylene Glycol	≤0.1	No.	Yes.	-	Yes.
Naphthalene	≤0.00001	Yes.	No.	Yes.	-
Toluene	≤0.00001	No.	Yes.	-	Yes.
Benzene	≤0.00001	Yes.	Yes.	Yes.	Yes.
Ethylbenzene	≤0.00001	Yes.	No.	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: zinc (and its compounds); zinc (and its compounds)

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 : All components are listed or exempted.

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 : 3/27/2023

Prepared by : EHS Department (Tel: +1 804 788 5800)

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

Toxicological and Ecotoxicological Test Data Summary(s) : CMR_A1, CORR_A21, SEN_A7

Indicates information that has changed from previously issued version.

Section 16. Other information

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.