

EVENT INVESTIGATION REPORT

AOP-015 Entry for Area between AP Farm and 272AW

Event Investigation Report Number: EIR-2016-011

Event Investigation Team Lead

4/12/2016
Date

PER Responsible manager

4/12/2016
Date

PER No. WRPS-PER-2016-0545

AOP-015 Entry for Area between AP Farm and 272AW

Investigation Summary

At approximately 2:20 p.m. on Monday, March 21, 2016, two Waste Transfer Engineers encountered "mild to moderate", intermittent solvent/adhesive-like odor west of 241-AP Farm near AP-801 water service building. The engineers were not a part of a specific work activity and respiratory protection was not required where the engineers were walking. No symptoms were reported.

Central Shift Manager (CSM) was notified of the odor and AOP-015 was entered on March 21, 2016 at 2:29 p.m. The CSM dispatched Nuclear Chemical Operators (NCOs) to secure the area and Industrial Hygiene Technicians (IHTs) to perform monitoring/sampling of the area of concern.

SOEN message issued by CSM: "Entering AOP-015 for area between AP farm and 272AW. Access is restricted to this area. All personnel exit the area."

A Fact Finding Meeting was not held.

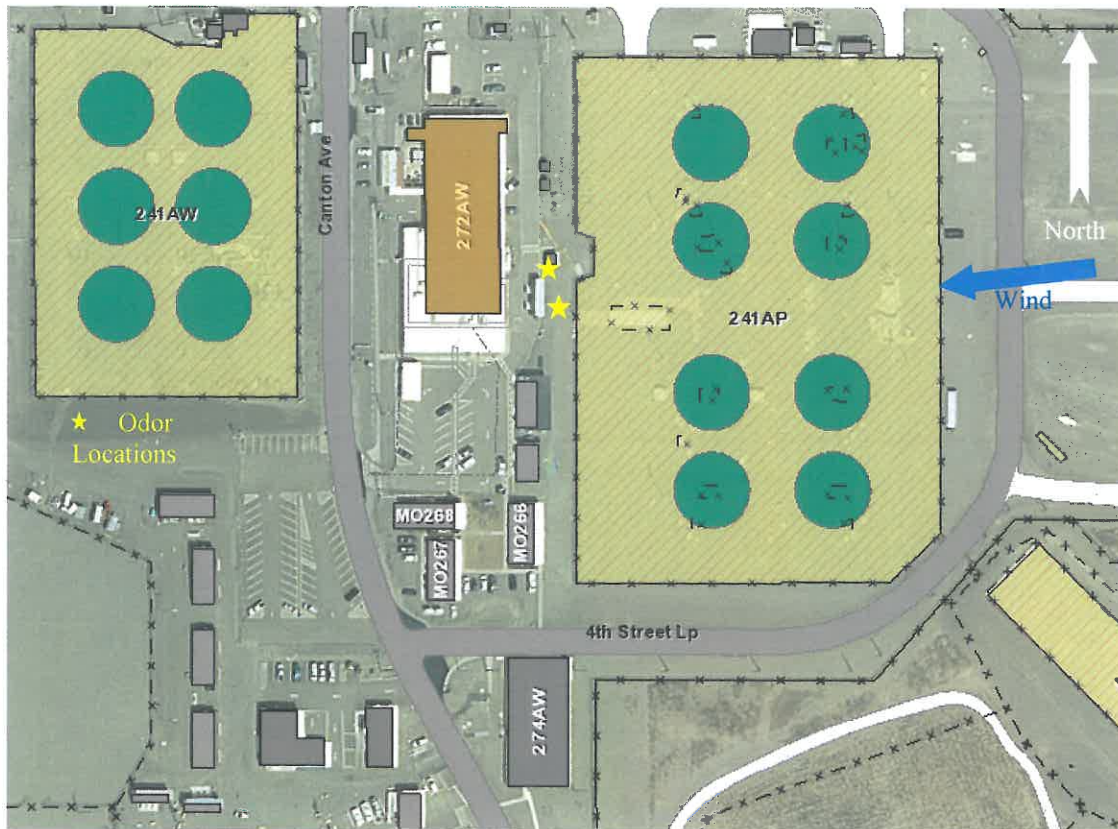
Weather Information

At 1420 when the engineers reported the smell winds were out of the East with an average wind speed of 5.1-7.5 with gusts up to 14.8

15-Minute Data Station #6 (200E) 03-21-2016									
Date/Time	Avg Wind Spd	Direction (deg)	Max Wind Spd	Avg Temp	Max Temp	Min Temp	Pressure (mb)	Humidity	Pressure (in/hg)
3/21/2016 13:30	5.9	159	10.0	60.4	60.9	60.0	982.17	49.45	29.003
3/21/2016 13:45	5.6	174	10.2	60.7	61.5	59.8	982.13	48.60	29.002
3/21/2016 14:00	4.4	106	8.5	60.7	61.8	60.1	982.02	48.55	28.999
3/21/2016 14:15	5.1	176	8.7	60.9	61.1	60.5	981.50	45.50	28.984
3/21/2016 14:30	7.5	196	14.8	60.9	61.4	60.6	981.42	42.01	28.981
3/21/2016 14:45	9.1	204	17.5	61.1	61.3	60.7	981.55	40.40	28.985
3/21/2016 15:00	11.3	216	17.7	60.9	61.1	60.7	981.06	40.07	28.971
3/21/2016 15:15	10.2	250	14.6	60.5	60.8	60.2	980.79	43.77	28.963
3/21/2016 15:30	10.1	247	18.0	60.5	61.3	59.8	980.65	42.70	28.959
3/21/2016 15:45	10.4	254	16.1	60.8	61.6	59.9	980.57	41.75	28.956
3/21/2016 16:00	10.3	232	15.0	61.1	62.0	60.4	979.96	40.86	28.938

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Map of Area



Event Timeline

03/21/2016

- 1418 Production Operations Industrial Hygiene Technician (IHT) Supervisor notifies AY/AZ team IH, AN team IH, and EV team IH of odor response card issued to Central Shift Office.
- 1420 CSM Log Entry – Entering AOP-015 for unexpected /abnormal odor between AP Farm and 272AW. Two engineers reported an intermittent solvent/adhesive type odor. The engineers do not have any symptoms and have declined medical surveillance. Dispatched NCOs to secure area and IHTs to perform monitoring/sampling of area of concern.
- 1420 EV team IH responds to area indicated on odor response card as area of concern. EV team IH is informed by American Electric subcontractor employee that Soil-Sement® (the application product was subsequently identified as Safegard 5022A based on interviews) application around South and West perimeter of AP Farm including area around the AP-801 water service building had just been completed ending at the AP-801 water service building at 1400.

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- 1423 AN team IH completes TF-AOP-015 Rev G-0 Attachment 1 as per TF-AOP-015 section 3.1.11.1 when tank farm vapors are not the expected source of odor.
- 1425 IHTs arrive at Central Shift Office and are instructed of odor response plan. IHTs leave Central Shift Office to begin Direct Reading Instruments (DRI) survey.
- 1430 CSM Log Entry – SOEN, Radio Announcement for 1420 entry are complete. Notified ORP On-Call Facility Representative (FR), and WRPS On-call Senior Manager.
- 1431 IHTs sweep 272AW hallway with DRI.
- 1442 American Electric worker informs Central Shift Office that Safeguard 5022A was applied to dirt pile near water service building.
- 1454 IHTs report to Central Shift Office that all DRI readings were less than detectable. Grab bag sample is in route to 2704HV.
- 1456 CSM Log Entry - IHT report that monitoring between AP and 272AW revealed no elevated readings.
- 1644 CSM Log Entry - IH reports that sample analysis for the AOP-015 event has been completed and the results are below action limits. Exiting AOP-015. SOEN complete. Notified ORP On-Call FR.
- 1817 Safety Programs Chemist reports to Central Shift Office that Hapsite portable GCMS results are consistent with blank bag outgassing.

Immediate Actions Taken

1. The two individuals who encountered the smell exited the area and notified management. The two individuals did not report any symptoms and declined medical surveillance.
2. Central Shift Manager entered into AOP-015.
3. Dispatched NCOs to secure area.
4. Dispatched IHTs to perform monitoring/sampling of area of concern.

Compensatory Measures

No compensatory measures were identified.

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Preliminary Extent of Condition Review

A search of the Problem Evaluation Request (PER) database yielded a number of PERs regarding AOP-015 entries, including two AP Farm AOP-015 entries between January 2014 and April 2016. The two PERs listed below identify other areas or concern. PER details captured in the following table:

PER Number / EIR Number	Description	Discovery Date	Significance	PER Title
WRPS-PER-2014-0953 EIR-2014-017	While preparing to perform work in 241-AP Farm, four workers smelled unusual odor along the west fenceline both inside and outside of the farm.	5/29/2014	Trend Only (Note: Roll-up to WRPS-PER-2014-0602)	AOP-015 Unusual odor detected in 241-AP along west fenceline inside and outside of farm
WRPS-PER-2016-0475 EIR-2016-009	Entered AOP-015 for chemical odors causing headaches upon the opening of AP07A-WT-TBX-002 cabinet to obtain TO-040-790 temperature readings.	3/8/2016	PER with Resolution	AP Farm AOP-015 event

Discussion of Potential Causes

Based on the review of the following IH monitoring and sampling data, the source of the odors encountered by the two engineers was most likely to be Safeguard 5022A. Safeguard 5022A dispensed via hand held application hazard controls are included under the general hazard analysis. The application of Safeguard around a dirt pile near the AP-801 water service building.

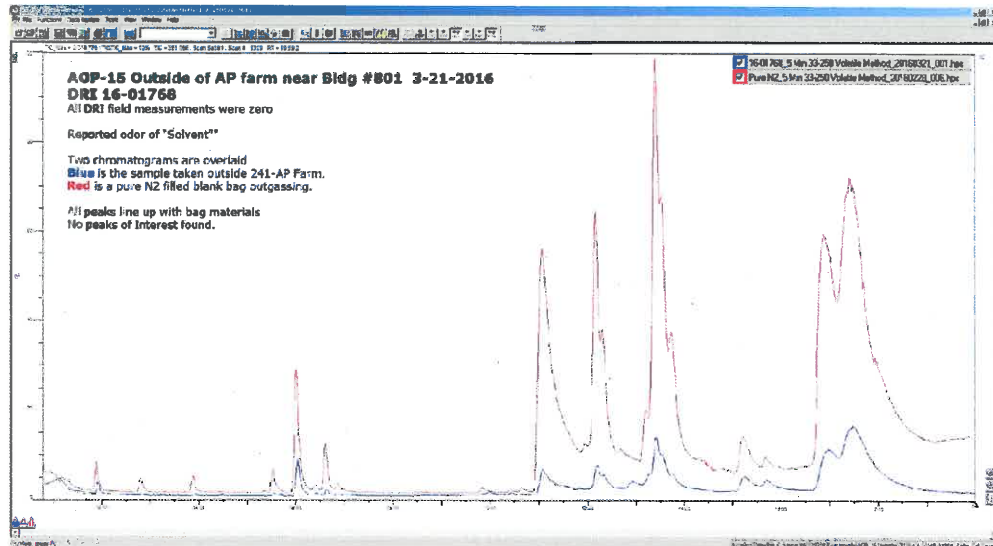
1. All samples came back at or below background based on the IH monitoring and sampling data:
 - a. Monitoring

AGENT	@ODOR	@SOURCE	EXPOSURE LIMIT	REPORTING LIMIT
Ammonia	0.0ppm	N/A ppm	25 ppm OEL/35ppm STEL	>0 ppm
Total VOCs	0.0ppm	N/A ppm	2 ppm AL	>0 ppm
Mercury	0.000000mg/m ³	N/A mg/m ³	0.025 mg/m ³ OEL	0.000016 mg/m ³
Nitrous Oxide	0.0ppm	N/A ppm	25 ppm AL	>0 ppm

- b. GCMS Sample Results:

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Hapsite analysis overlay chromatogram:



Assigned DRI 16-01768.

Complaint of "solvent" odor.

No solvent compounds observed. No materials other than bag outgassing identified.

- American Electric subcontractor worker indicated that Safeguard 5022A was applied to a dirt pile near AP-801 water service building. Safeguard is periodically used within and around tank farms. The product does have an odor but the IHTs that monitored and sampled the area only detected at or below background levels.

Discussion of Barriers That Could Have Impacted the Cause

- Not applicable. Use of respiratory protection would mitigate similar odors; however, use of respiratory outside tank farms is not being considered at this time. The use of dust mask with charcoal filters may mitigate similar odors but the dust masks are not known by/ routinely used by the work force.

Recommendations/Proposed Corrective Actions

- There are no proposed corrective actions.

Attachments

- Odor Response Card

SAFETY DATA SHEET
SafeGard 5022A

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SDS#020641A

Section 1 – Identification

GHS product identifier : SafeGard 5022A
Product Code : 5172-S
Other means of identification : Not available
Product type : liquid

Relevant identified areas of uses of the substance of mixture and uses advised against
Identified uses: Protective coating

Uses advised against: Not available Reason:

Supplier's details : Sanchem Inc
1600 S. Canal St
Chicago, IL 60616

Emergency Telephone Number: 24 hr. Chemtrec 1-800-424-9300

Section 2 – Hazard identification

OSHA/HCS status : While this materials is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of substance or mixture: Not Classified

GHS label elements

Signal word : No signal word.
Hazard statements : No significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable
Response : Not applicable
Storage : Not applicable
Disposal : Not applicable

Hazards not otherwise classified : None known.

Section 3 – Composition/information on ingredients

Substance/mixture : Mixture
Chemical Name : Not available
Other means of identification : Not available

CAS number/other identifiers
CAS number : Not applicable

Ingredient Name	%	CAS#
Ammonia	0.03	7664-41-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

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Section 4 – First aid measures

- Eye** : Immediately flush eye with plenty of water, occasionally lifting the upper and eyelids. Check for and remove any contact lens. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable to breathing. Get medical attention if symptoms occur.
- Skin contact** : Wash skin thoroughly with soap and water or use recognized skin cleaner. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position (Swallowing): First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

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.

Section 5 – Fire-fighting measures

- Extinguishing media**
- Suitable extinguishing media** : Product itself does not burn. CO2, extinguishing powder, waterjet, or alcohol resistant foam.
- Unsuitable extinguishing media** : None known
- Specific hazards arising from the chemical** : No specific fire or explosion hazard.
- Hazardous thermal decomposition products** : In case of fire: Formation of carbon monoxide and dioxide
- 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.
- Further information** : Avoid contact between this product and oxidation catalysts

Section 6 – Accidental release measures

Personal Protective Equipment must be worn, see Personal Protection Section for PPE recommendations. Ventilate area if spilled in confined space or other poorly ventilated areas. Prevent entry into sewers and waterways. Spilled liquid and dried film are slippery. Use care to avoid falls. Pick up free liquid for recycle and/or disposal. Residual liquid can be absorbed on inert material. Wash spill area with soap and water.

Section 7 – Handling and storage

- Pumping Temperature** : Not determined
- Maximum Handling Temperature** : Not determined.

Handling Procedures : Keep containers closed when not in use. Avoid eye contact. Avoid repeated or prolonged skin contact. Avoid drinking, tasting, swallowing or ingesting this product. Avoid

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breathing dust, fume, gas, mist, vapors or spray. Minimize contact with air to reduce contamination with mold, fungus, or other organisms which could cause decomposition or spoilage. Wash thoroughly after handling. Empty container contains product residue which may exhibit hazards of product. Dispose of packaging or containers in accordance with local, regional, national and international regulations.

Loading Temperature Keep from freezing. Keep container closed when not in use. Do not store in open, unlabeled or mislabeled containers. See section 10 for incompatible materials. Not determined.

Maximum Storage Temperature Storage Procedures Not determined.

Section 8 – Exposure controls/personal protection

Exposure Limits None established
Other Exposure Limits None known.

Engineering Controls Use material in well ventilated area only. Additional ventilation or exhaust may be required to maintain air concentrations below recommended exposure limits.

Gloves Procedures Use good industrial hygiene practices to avoid skin contact. If contact with the material may occur wear chemically protective gloves.

Eye Protection Safety Glasses.

Respiratory Protection Use NIOSH/MSHA approved respirator with a combination organic vapor and high efficiency filter cartridge if recommended exposure limit is exceeded. Use self-contained breathing apparatus for entry into confined space, for other poorly ventilated areas and for large spill clean-up sites.

Clothing recommendation: Protective clothing and safety shoes.

Section 9 – Physical and chemical properties

Flash Point Not applicable.
Upper Flammable Limit Not determined.
Lower Flammable Limit Not determined.
Autoignition Point Not determined.
Explosion Data Material does not have explosive properties.
Vapor Pressure ~ 18mmHg(20°C)
pH 6.6 – 7.4
Specific Gravity 1.1 @ 20 C
Bulk Density -9.2Lb/gal, -1.1 Kg/l.
Water Solubility Material is miscible in water
Percent Solid 40% By Weight
Percent Volatile 0% By Weight
Volatile Organic Compound Not determined
Vapor Density < 1 Air=l
Evaporation Rate < 1 Butyl acetate=l
Odor Slight acrylate
Appearance Translucent liquid.
Viscosity < 500 Centipoise (25 °C)
Odor Threshold Not determined.
Boiling Point ~ 100°C, ~212°F(Typical)
Pour Point Temperature Not determined
Melting / Freezing Point 0 °C, ~ 32 °F

Section 10 – Stability and reactivity

Stability	Material is normally stable at moderately elevated temperatures and pressures.
Decomposition Temperature	Not determined.
Incompatibility	Acids. Bases. Strong oxidizing agents.
Polymerization	Will not occur.
Thermal Decomposition:	Smoke, carbon monoxide, carbon dioxide, aldehydes and other products of incomplete combustion. Under combustion conditions, oxides of the following elements will be formed: nitrogen. Irritating and toxic substances may be emitted upon combustion, burning, or decomposition of dry solids. Decomposition may also form nitrogen oxides.
Conditions to Avoid	Do not freeze.

Section 11 – Toxicological information

- ACUTE EXPOSURE -

Eye Irritation	Not expected to cause eye irritation Based on data from components or similar materials Vapors formed from heating may cause eye irritation.
Skin Irritation	Not expected to be a primary skin irritant Based on data from components or similar materials. Repeated or prolonged skin contact may cause irritation.
Respiratory' Irritation	If material is misted or if vapors are generated from heating, exposure may cause irritation of mucous membranes and the upper respiratory tract. This is based on data from components or similar materials.
Dermal Toxicity	The LD50 in rabbits is > 2000 mg/KLg. This is based on data from components or similar materials
Inhalation Toxicity	Overexposure to vapors or mist may cause dizziness, headache, nausea, and/or flu-like symptoms. Avoid inhalation of mist or vapors.
Oral Toxicity	The LD50 in rats is > 5000 mg/Kg. based on data from components or similar materials. Ingestion of this material may cause gastrointestinal irritation.
Dermal Sensitization	No data available to indicate product or components may be a skin sensitizer.
Inhalation Sensitization	No data available to indicate product or components may be respiratory sensitizers.

- CHRONIC EXPOSURE -

Chronic Toxicity	No data available to indicate product or components present at greater than 1% arc chronic health hazards.
Carcinogenicity	No data available to indicate any components present at greater than 0.1% may present a carcinogenic hazard.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1 % are mutagenic or genotoxic.
Reproductive Toxicity	No data available to indicate either product or components present at greater than 0.1% that may cause reproductive toxicity.
Teratogenicity	No data available to indicate product or any components contained at greater than 0.1 % may cause birth defects.

- ADDITIONAL INFORMATION -

Other	Pre-existing skin conditions may be aggravated by prolonged or repeated exposure. Persons with sensitive airways (e.g., asthmatics), may react to vapors.
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Section 12 – Ecological information**- ENVIRONMENTAL TOXICITY -**

Freshwater Fish Toxicity	Not determined
Freshwater Invertebrates Toxicity	Not determined
Algal Inhibition Saltwater Fish Toxicity	Not determined
Saltwater Invertebrates Toxicity	Not determined
Bacteria Toxicity	Not determined
Miscellaneous Toxicity	Not determined

- ENVIRONMENTAL FATE -

Biodegradation	Adequate data is not available to estimate the biodegradation potential of this material
Bioaccumulation	25% or greater of the components display no potential to bio-concentrate.
Soil Mobility	Not determined.

Section 13 –Disposal considerations

Waste Disposal This material, if discarded, is not a hazardous waste under RCRA Regulation 40 CFR 261. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

Section 14 – Transportation Information

ICAO/IATAI	Not regulated
ICAO/IATA II	Not regulated
IMDG	Not regulated.
IMDG EMS Fire	Not regulated
IMDG EMS Spill	Not regulated
IMDG MFAG	Not regulated
MARPOL Annex II	Not regulated
USCG Compatibility	Not regulated
U. S. DOT Bulk	Not regulated
DOT NAERG	Not regulated
U.S. DOT (Intermediate)	Not regulated
U.S. DOT Intermediate NAERG	Not Applicable
U.S. DOT Non-Bulk	Not regulated
U.S. DOT Non-Bulk NAERG	Not Applicable
Canada	Not Regulated
Mexico	Not regulated
Bulk Quantify	85000 KG, 187391 lbs
Intermediate Quantity	11000 KG, 24251 lbs
Non-Bulk Quantify	400 KG, 882 lbs

Section 15 – Regulatory information**Global Chemical Inventories**

USA	All components of this material are on the US TSCA Inventory or are exempt
Other TSCA Reg.	None known.
EU	All components are in compliance with the EC Seventh amendment Directive 92 /32/EEC.
Japan	All components are in compliance with the Chemical Substances Control Law of Japan.
Australia	All components are in compliance with chemical notification requirements in Australia.
New Zealand	This product requires notification before sale in New Zealand

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Canada All components are in compliance with the Canadian Environmental Protection Act and are present on the Domestic Substances List.

Switzerland All components are in compliance with the Environmentally Hazardous Substances Ordinance in Switzerland.

Korea All components are in compliance in Korea.

Philippines All components are in compliance with the Philippines Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (R.A. 6969).

China All components of this product are listed on the Inventory of Existing Chemical Substances in China.

SARA Ext. Haz. Subst. This product does not contain greater than 1.0% of any chemical substance on the SARA Extremely Hazardous Substances list.

SARA Section 313 This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical substances listed under SARA Section 313

SARA 311 Classifications

Acute Hazard	NO
Chronic Hazard	NO
Fire Hazard	NO
Reactivity Hazard	NO

CERCLA Hazardous Subs. None Known

— State Regulations —

Cal. Prop. 65 This product does not intentionally contain any chemicals known by the State of California to cause cancer and/or birth defects. Moreover, we do not routinely analyze its products for impurities which may be such chemicals.

- Product Registrations -

U.S. Fuel Registration	Not applicable
Finnish Registration Number	Not Registered
Swedish Registration Number	Not Registered
Norwegian Registration Number	Not Registered
Danish Registration Number	Not Registered
Swiss Registration Number	Not Registered
Italian Registration Number	Not Registered

— Other U.S. Federal Regulations —

Miscellaneous Regulatory Information Not determined.

— Global Chemical Inventories —

Section 16 – Other information

Date of issue/Date of revision : 4-1-2015

Version : 1

HMIS: H-Health : 1 F-Flammability: 1 Physical Hazards: 0

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