



Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PHOS-CHEK® FIRE RETARDANT GRADES LV-R AND MV-R

Reference Number AST10043

Date: March 26, 2001

Company Information:

ASTARIS LLC
622 Emerson Road - Suite 500
St. Louis, Missouri 63141

Emergency telephone: In USA call CHEMTREC: 1-800-424-9300
In Canada call CANUTEC: 1-613-996-6666

General Information: 1-800-244-6169

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>% by weight</u>
Diammonium Sulfate	7783-20-2	> 25
Monoammonium Phosphate	7722-76-1	> 5
Diammonium Phosphate	7783-28-0	> 5
Guar Gum, 2-Hydroxypropyl Ether	39421-75-5	< 5
Performance Additives +	Trade Secret	< 5
Water		> 50

+ Components are Company Trade Secret - Business Confidential. Astaris is withholding the specific chemical identity under provision of the OSHA Hazard Communication Rule Trade Secrets (1910.1200(i)(1)). The specific chemical identity will be made available to health professionals in accordance with 29 CFR 1910.1200 (i)(1) (2) (3) (4).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance: Liquid/slurry. May have reddish color due to added pigment.

WARNING STATEMENTS

Astaris Material Safety Data Sheet

Material: Phos-Chek® Fire Retardant Grades LV-R & MV-R

Reference No.: AST10043

Page 2 of 6

March 26, 2001

NO SIGNIFICANT HAZARDS ASSOCIATED WITH THIS MATERIAL

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: Skin contact and inhalation

EYE CONTACT: This product is no more than slightly irritating based on toxicity studies.

SKIN CONTACT: This product is no more than slightly irritating or slightly toxic based on toxicity studies. Prolonged contact with the skin can result in drying or chapping.

INHALATION: No information.

INGESTION: This product is no more than slightly toxic based on toxicity studies. Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES OR ON SKIN: Immediate first aid is not likely to be required. However, this material can be removed with water. Wash heavily contaminated clothing before reuse.

IF INHALED: Immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

IF SWALLOWED: Immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not combustible

HAZARDOUS PRODUCTS OF COMBUSTION: Not applicable

EXTINGUISHING MEDIA: not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS: None known

FIRE FIGHTING EQUIPMENT: Not applicable

6. ACCIDENTAL RELEASE MEASURES

Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush residual spill area with water.

Refer to Section 13 for disposal information and Sections 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

HANDLING

HANDLE IN ACCORDANCE WITH GOOD INDUSTRIAL HYGIENE AND SAFETY PRACTICES. THESE PRACTICES INCLUDE AVOIDING UNNECESSARY EXPOSURE AND REMOVAL OF MATERIAL FROM EYES, SKIN AND CLOTHING.

STORAGE: Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in the MSDS.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: This product does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact.

SKIN PROTECTION: Although these products do not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

RESPIRATORY PROTECTION: Avoid breathing mist. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure is excessive. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. § 1910.134.

VENTILATION: Provide natural or mechanical ventilation to minimize exposure. If practical use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

AIRBORNE EXPOSURE LIMITS:

<u>Product/Component</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>
PHOS-CHEK Fire Retardant, Grades LV-R and MV-R	None established	None established

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure limits legislated for the province in which the substance will be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid/slurry. May have reddish color due to added pigment.
pH: 6.0 ± 0.5
Viscosity: < 100 cps @ 75 degrees F (24 degrees C) prior to dilution.
Specific Gravity: 1.22-1.30 @ 25/25 degrees C

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Astaris Material Safety Data Sheet

Material: Phos-Chek® Fire Retardant Grades LV-R & MV-R

Reference No.: AST10043

Page 4 of 6

March 26, 2001

STABILITY: This product is stable under normal conditions of storage and handling.

MATERIALS TO AVOID: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Ammonia, sulfuric acid, and phosphoric acid may be formed when this product is heated to dryness and held for prolonged times above 194 degrees F (90 degrees C). Further decomposition resulting in sulfur dioxide may occur at approximately 482 degrees F (250 degrees C).

HAZARDOUS POLYMERIZATION: Will not occur

11. TOXICOLOGICAL INFORMATION

Data from laboratory studies conducted by Astaris on these products, in the concentrated form are summarized below:

Single exposure (acute) studies indicate:

PHOS-CHEK Fire Retardant Grade LV-R

Oral -	Practically Nontoxic	(Rat LD50 > 5050 mg/kg)
Dermal -	No More Than Slightly Toxic	(Rabbit LD50 > 2,020 mg/kg)
Eye Irritation -	Slightly Irritating	(Rabbit, 3.3-4.0/110.0)
Skin Irritation -	Practically Non-irritating	(Rabbit, 4-hr exposure, 0.0/8.0)

PHOS-CHEK Fire Retardants Grades MV-R

Oral -	No More Than Slightly Toxic	(Rat LD50 > 505 mg/kg)
Dermal -	No More Than Slightly Toxic	(Rabbit LD50 > 2,020 mg/kg)
Eye Irritation -	Slightly Irritating	(Rabbit, 6.7-7.7/110.0)
Skin Irritation -	Practically Non-irritating	(Rabbit, 4-hr exposure, 0.0/8.0)

COMPONENTS

Data from Astaris studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200) are discussed below:

Diammonium Sulfate

Reports of human experience indicate that diammonium sulfate may be mildly to moderately irritating to eyes, skin and respiratory tract.

Diammonium sulfate was slightly toxic orally and no more than slightly toxic after skin application (rabbits). It was slightly irritating to rabbit eyes and nonirritating to rabbit skin. Inhalation of diammonium sulfate by guinea pigs was reported to produce lung effects and, at high level exposures, animal deaths due to shock and airway constriction. Repeated inhalation had no effect on lung defense mechanisms of hamsters, but was reported to increase the incidence of emphysema in comparison to controls. Aerosols of diammonium sulfate aggravated artificially induced emphysema in rats. Diammonium sulfate produced no genetic changes in standard tests using bacterial cells.

Astaris Material Safety Data Sheet

Material: Phos-Chek® Fire Retardant Grades LV-R & MV-R

Reference No.: AST10043

Page 5 of 6

March 26, 2001

Additional Information

These products are not expected to present an inhalation hazard during routine shipping or handling due to their physical properties as viscous liquids. Cohesive solids are left as residues from these fire retardants after loss of all of the fluid. When spilled, under normal conditions fire retardant physical properties would prevent production of respirable dusts. The hazardous components present in these products could cause respiratory tract irritation and/or sensitization if conditions resulting in generation of respirable dusts are allowed.

12. ECOLOGICAL INFORMATION

Astaris has not conducted environmental toxicity or biodegradation studies with this product.

13. DISPOSAL CONSIDERATIONS

This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dry material may be landfilled or recycled in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT

Not regulated for transport

Canadian TDG

Not regulated for transport

15. REGULATORY INFORMATION

TSCA Inventory: Listed

DSL Inventory: Listed

WHMIS Classification; D2(B) - Materials Causing Other Toxic Effects

SARA Hazard Notification

Hazard Categories Under Title III Rules (40 CFR 370): None.

Section 302 Extremely Hazardous Substances: Not Applicable.

Section 313 Toxic Chemical(s): This product contains aqueous ammonia from dissociable ammonium salts. 1.1 percent of this product is reportable under the requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

CERCLA Reportable Quantity: Not applicable

Astaris Material Safety Data Sheet

Material: Phos-Chek® Fire Retardant Grades LV-R & MV-R

Reference No.: AST10043

Page 6 of 6

March 26, 2001

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.

Refer to Section 11 for OSHA/HPA Hazardous Chemical(s) and Section 13 for RCRA classification.

16. OTHER INFORMATION

	Health	Fire	Reactivity	Additional Information
Suggested NFPA Rating	1	0	0	
Suggested HMIS Rating	1	0	0	B

Reason for revision: New Company

Supersedes MSDS dated: Not Applicable

Product Use: Fire Retardant

Phos-Chek ® is a registered trademark of Astaris Inc.
Astaris™ is a trademark of Astaris LLC

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Astaris LLC makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Astaris LLC be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS