1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Non-Phenolic Saturated Fire Retardant Paper With Nanofiber
Clark Filter Grade: S24381 FR, S24521 FR Synonyms: N/A CAS Number: Not applicable to blends.

Company Identification: Clark Filter Web: www.clarkfilter.com
3649 Hempland Road, Lancaster, PA 17601-1323
1-800-73-CLARK or 01-717-285-5941 (For product information 7:00 AM to 4:00 PM EST)

2. COMPOSITION / INFORMATION ON INGREDIENTS:

CONTAINING: HAZARDOUS AND/OR REGULATED COMPONENTS

Chemical Name	Amount	CAS Number	OSHA PEL	ACGIH TLV	
Formaldehyde		<0.10%	50-00-0	0.75ppm	0.3ppm
Decabromodiphenyl Oxide		<5.00%	1163-19-5	Not established	
Antimony Trioxide		<3.00%	1309-64-4	0.5ppm	0.5ppm

Note: This product is an “article”, not a “hazardous chemical” as regulated under the OSHA communication Standard 29CFR 1910.1200. However this product contains trace amounts of Formaldehyde, which OSHA lists as a potential Upper respiratory irritant and potential cancer hazard. Adequate ventilation should be provided.

COMPOSITION COMMENT: The coating is a nanofiber utilizing a polymer substrate.

California Prop 65: This product does not contain any ingredients which are known to the state of California to cause cancer, birth defects, or other reproductive harm.

HAZARDS DISCLOSURE: This product contains no known hazardous materials in reportable levels as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200 except as listed above. As defined under Sara 311 and 312, this product contains no known hazardous materials.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
This product is not a “hazardous chemical” as regulated under the OSHA communication Standard 29CFR 1910.1200.

HMIS/NFPA Rating:
Health - 1, Flammability - 1, Reactivity – 0, Personal Protection Index – N/A
NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

POTENTIAL HEALTH EFFECTS
INHALATION: Presents little or no harm. However, if allowed to become airborne, DUST may cause irritation of nose and throat.

INGESTION: Product not in an ingestible form. If eaten treat symptomatically.

SKIN CONTACT: No hazard known or expected. Dust could cause irritation.

EYE CONTACT: Presents little or no harm. Dust may cause mechanical irritation and redness.

CHRONIC EXPOSURE: This product contains formaldehyde, which has been listed by OSHA and IARC as a carcinogen and by NTP as reasonably anticipated to be a human carcinogen. See section 8 for exposure guidelines and section 11 for toxicological information.

AGGRAVATION OF PRE-EXISTING CONDITIONS: No aggravation of any pre-existing conditions known or expected.

4. FIRST AID MEASURES

INHALATION FIRST AID: If a respiratory problem develops from dust. Remove victim to fresh air and provide oxygen if breathing is difficult. Get medical attention. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting or unresponsive, give 100% oxygen with rescue breathing or CPR as required and transport to the nearest medical facility. This is considered an unlikely event

SKIN CONTACT FIRST AID: First wash with soap and water. If rash or irritation develops or persists get medical attention. This is considered an unlikely event.

EYE CONTACT FIRST AID: If dust comes into contact with eyes, immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately. This is considered an unlikely event.

INGESTION FIRST AID: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention. This is considered an unlikely event.

STATEMENT OF PRACTICAL TREATMENT: Always have plenty of water available for first aid. Get medical attention if any symptoms develop or persist.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Not flammable. Decomposition may start at about 250 C.
FLAMMABLE LIMITS IN AIR, % by Volume: Not applicable
AUTO IGNITION TEMPERATURE: Not available

EXTINGUISHING MEDIA: Water, dry chemical, alcohol foam, or carbon dioxide. Material floats on water. Water spray may be used to keep exposed material cool. Do not allow water runoff to enter sewers or waterways.

FIRE & EXPLOSION HAZARDS: Incinerating or pyrolysis may create hazardous gases including: Carbon monoxide (TWA 25 ppm; STEL 50 ppm) and carbon dioxide (TWA 5000 ppm; STEL 30,000 ppm)

C= Ceiling; TWA= Time Weighted Average; STEL= Short Term Exposure Limit

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. Cool containers with flooding quantities of water until well after fire is out. Do not enter confined fire space without full bunker gear (helmet with face shield, bunker coats, gloves and rubber boots), including a positive pressure, NIOSH approved, self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Physical form requires no obvious personal protective equipment when cleaning up spills. Wear a dust mask if particulate count exceeds limits, and gloves as appropriate.

SPILLS PROCEDURE: Collect material for reuse or disposal.

ENVIRONMENTAL PRECAUTIONS: Material is not readily biodegradable, but offers no environmental hazard other than its waste status.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE CONDITIONS: Avoid conditions of extreme heat and humidity. Avoid heat sources, open flames and sparks.

SHELF LIFE: Indefinite if stored properly.

HANDLING (PERSONNEL): Handle in accordance with good hygiene and safety procedures. Avoid breathing dust if present. Wash thoroughly after handling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS: See Section 2 above.

VENTILATION SYSTEM: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

PERSONAL RESPIRATORS (NIOSH APPROVED): If the respirable particulate exposure limit is exceeded, wear a NIOSH approved dust mask.

SKIN PROTECTION: In normal industrial use no skin protection is required.

EYE PROTECTION: When mechanically working this product, safety glasses with side shields or coverall goggles are recommended for airborne dust exposures in excess of the applicable limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Solid
ODOR: Odorless
SOLUBILITY IN WATER: Insoluble in water
MELTING/FREEZING POINT: Not available
Auto ignition Temperature: 400°C
Flash Point & Method: Not applicable
Flammability: Slight

APPEARANCE: Paper
BOILING POINT: N/A
Relative Density: 10-35 lbs/ft^3
Evaporation Rate: Not applicable
pH: Not applicable
% MOISTURE: 2-7%
VAPOR PRESSURE: @ 72 F Not applicable

10. STABILITY AND REACTIVITY

STABILITY: The material is stable.

CONDITIONS TO AVOID: Heat can melt the material but offers no hazard. Flames and pyrolysis can generate many chemicals including the gases listed in Sec. 5.

POLYMERIZATION: Additional polymerization cannot occur.

INCOMPATIBILITY WITH OTHER MATERIALS: None reasonably foreseeable.

DECOMPOSITION: See gases generated on combustion in Sec. 5 above.

11. TOXICOLOGICAL INFORMATION

50-00-0 Formaldehyde
May cause cancer. OSHA regulated formaldehyde as a potential human carcinogen. See the OSHA formaldehyde workplace standard at 29 CFR 1910.1048. The National Toxicology Program (NTP) has listed formaldehyde as a reasonably anticipated to be a human carcinogen. The International Agency for Research on Cancer (IARC) has concluded formaldehyde is carcinogenic to humans.

Safe handling and use instructions are provided in this MSDS and in the OSHA formaldehyde workplace standard at 29 CFR 1910.1048. Please review and understand the guidance contained in this MSDS and refer to the OSHA formaldehyde workplace standard at 29 CFR 1910.1048 for regulatory requirements that may be applicable to your operational use.

The critical target organs to airborne formaldehyde are the nose and eyes, with the lungs being a secondary target at high exposure levels. May cause allergic skin reaction. Some reports suggest that formaldehyde may cause respiratory sensitization, such as asthma, and that pre-existing respiratory and skin disorder may be aggravated by exposure.

LC50:	Rat	0.59 mg/l	(sax)
LD50:	Oral-rat	800 mg/kg	(Merck)
	Skin-rabbit	270 mg/kg	(Sax)

1163-19-5 Decabromodiphenyl Oxide

There is limited evidence that Decabromodiphenyl Oxide causes cancer in animals. OSHA and the National Toxicology Program (NTP) do not classify this substance in terms of carcinogenicity. The International Agency for Research on Cancer (IARC) has classified Decabromodiphenyl Oxide as a Group 3 chemical agent: not classifiable as to carcinogenicity to humans.

Safe handling and use instructions are provided in this MSDS. Please review and understand the guidance contained in this MSDS.

Decabromodiphenyl Oxide can be absorbed through the skin and may cause skin irritation and redness. This chemical can accumulate in the body with repeated exposure and may cause damage to the liver.

LD50:	Oral-rat	5 g/kg	(RTECS)

1309-64-4 Antimony Trioxide
May cause cancer. The International Agency for Research on Cancer (IARC) has classified antimony trioxide as a Group 2B chemical agent: possibly carcinogenic to humans. IARC's Monograph, Volume 47, states that benign and malignant lung tumors have been seen in rats exposed to concentrations of antimony trioxide of 4.2 and 45 mg/m^3. No lung tumors were reported in rats exposed to 1.6 mg/m^3. However, there is inadequate evidence of the carcinogenicity of antimony trioxide in humans.

Safe handling and use instructions are provided in this MSDS. Please review and understand the guidance contained in this MSDS.

Occupational exposure to antimony trioxide compounds has been reported to result in adverse effects on the heart, lungs and gastrointestinal tract, including the kidneys and liver.

LD50:	Intraperitoneal-mouse	172 mg/kg	(RTECS)

NOTES: LC50 = concentration of chemical that kills 50% of the test animals in a given time.
LD50 = Amount of material, given all at once, that kills 50% of the test animals.

12. ECOLOGICAL INFORMATION

Material is not readily biodegradable but offers no known environmental hazard.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Whatever cannot be saved for recovery or recycling should be handled as a non hazardous waste and sent to an approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of material in accordance with federal, state and local requirements.

CONTAMINATED MATERIALS: Wash contaminated clothing before reuse.

14. TRANSPORTATION INFORMATION

Domestic (Land, D.O.T.), International (Water, I.M.O.), International (Air, I.C.A.O.)
PRODUCT LABEL: **Non-Phenolic Saturated Fire Retardant Paper With Nanofiber**
UN NUMBER: Non-Regulated material D.O.T. HAZARD CLASS: NA
PACKAGE CLASS: NA PRODUCT RQ (LBS): None
D.O.T. PROPER SHIPPING NAME: Not regulated PACKING GROUP: NA

15. REGULATORY INFORMATION

FEDERAL REGULATORY STATUS
OSHA Classification: Product is NOT hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SARA Title III: Section 311/312: Not Applicable.

SARA Title III: Section 313 and 40 CFR Part 372:

Component	CAS #	% by weight
Formaldehyde	50-00-0	<0.1%
Decabromodiphenyl Oxide	1163-19-5	<5.00%
Antimony Trioxide	1309-64-4	<3.00%

Poison Schedule: None allocated.

WHMIS: This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Mexican Secretary of Labor and Social Welfare: This product has been classified in accordance with the hazard criteria of *Norma Oficial Mexicana NOM-018-STPS-1999* and the MSDS contains all the information required by *Norma Oficial Mexicana NOM-018-STPS-1999.*

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA). This material or all of its components are listed on the Canadian Domestic Substances List (DSL). This material or all of its components are listed (or considered as having been notified) on the European Inventory of Existing Chemical Substances (EINECS). Other inventory lists: ENCS (Japan), Korea, Australia, China (Draft), PICCS (Philippines), Japan (ENCS).

16. OTHER INFORMATION

Prepared By: Donato Polignone (MSDS Authoring Services)
Approved By: Ian Derstler
Approval Date: December 8, 2008 Supersedes Date: January 4, 2008

ADDITIONAL INFORMATION:

The data in this Material Safety Data Sheet relates only to the specific material designated herein. It does not relate to use in combination with any other material or in any process. This Material Safety Data Sheet (MSDS) has been reviewed to fully comply with the guidance contained in the ANSI MSDS standard (ANSI Z400.1-2004)

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Clark Filter. The data on this sheet are related only to the specific material designated herein. Clark Filter assumes no legal responsibility for use or reliance upon these data.

END OF MSDS