

Weifang Lakeland Safety Products Co. Ltd.
Material Data Safety Sheet

Spunbonded Polypropylene
Products (ZONEGUARD®)

May 1, 1999

Human - Spunbonded Polypropylene worn for 72 hours produces no skin redness or swelling or skin sensitization. Lakeland has sold ZONEGUARD® fabrics as protective clothing primarily in the asbestos remediation field since 1994 without any dermatological reactions by human contact for extended exposure periods.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

Mechanical irritation - remove particle. Seek medical help if irritation persists.

FIRE FIGHTING MEASURES

Flammable Properties

Products made from ZONEGUARD® are not intended for use in fire-retardant garments. Fabrics of ZONEGUARD® should not be used near heat, flame, sparks nor in explosive environments.

ZONEGUARD® fabric does not pass DOC FF 3017, "Children's Sleepwear Test" and does not pass NFPA 701.

Gases/vapors produced in fire from complete combustion of ZONEGUARD® are CO₂ and water. Incomplete combustion yields hazardous gases/vapors including CO, acrolein, other aldehydes, ketones, fatty acids and shortchain hydrocarbons.

Static Discharge

ZONEGUARD® styles can build a static charge during roll or sheet handling operations and care should be used when handling in areas where potential for flammable or explosive vapor/air mixtures exist. In low humidity conditions, all styles of ZONEGUARD®, whether they contain an anti-static coating or not, can build a static charge.

ZONEGUARD® Products**Lakeland Material Safety Data Sheet****May 1, 1999****Extinguishing Media**Water, Dry Chemical, CO²**Exposure Guidelines**

Applicable Exposure Limits Polypropylene
 PEL (OSHA) : None Established
 TLV (ACGIH) : None Established
 AEL : 10 mg/m³, 8 Hr. TWA, total dust
 : 5 mg/m³, 8 Hr. TWA, respirable dust

*AEL is Lakeland's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data:

Melting Point : 110-140°C (230-284°F) @ mm HG
 % Volatiles : <0.1 wt% @ 25°C (77°F)
 Solubility in Water : Insoluble
 Odor : Odorless
 Form : Sheets or Rolls
 Color : White
 Specific Gravity : 0.95-1.00 g/cc

STABILITY AND REACTIVITY

Chemical Stability

Stable

Aromatic hydrocarbons, gasoline, lubricating oils, and halogenated hydrocarbons may soften and swell ZONEGUARD®.

Incompatibility with Other Materials

Products made from ZONEGUARD® should not be stored in contact with strong oxidizing agents, especially at elevated temperatures as is the case for most polymers.

ZONEGUARD® Products Lakeland Material Safety Data Sheet May 1, 1999**Decomposition**

Exothermic oxidation starts to occur at 335°C (635°F). Auto-ignition occurs at 400°C (750°F).

Incomplete combustion yields hazardous gases/vapors including CO, acrolein, other aldehydes, ketones, fatty acids, and short-chain hydrocarbons.

Polymerization

Polymerization will not occur.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity
Non-toxic - Insoluble

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

See Section on Regulatory Information under RCRA.

TRANSPORTATION INFORMATION

Shipping Information**DOT/MO**

Proper Shipping Name : Lakeland - ZoneGuard

DOT

Hazard Class : Not regulated material
I.D. No. (UN/NA) : Not regulated material
DOT Label(s) : Not regulated material
Subsidiary Hazard Class : Not regulated material
Reportable quantity : Not regulated material

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REGULATORY INFORMATION

Toxic Substance Control Act (TSCA)

ZoneGuard is considered an "article" under provisions of TSCA. All non-exempt chemical components are included in the TSCA inventory of chemical substances compiled by U.S. Environmental Protection Agency (EPA) as well as on the European chemical inventory (EINECS).

Occupational Safety & Health Act (OSHA)

ZoneGuard is considered a non-hazardous material under provision of the Hazard Communication Standard (29 CFR 1910.1200). This MSDS is not required but is provided to ZoneGuard customers as a service.

Resource Conservation and Recovery Act (RCRA)

ZoneGuard is not a hazardous waste as defined by regulations implementing the Resource Conservation and Recovery Act (RCRA). ZoneGuard waste materials should be disposed of in compliance with Federal, State and Local regulations. Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option #2 very desirable for material which cannot be recycled. ZoneGuard is essentially pure Polypropylene and it is being recycled along with other common plastics such as milk bottles.

ZoneGuard will not disperse in water. So, while it can be disposed of with normal trash, it should never be put in with paper waste which will be repulped. ZoneGuard is not readily biodegradable and contains no significant percentage of material extractable in water so its effect on ground water in case of land-fill disposal should be negligible.

ZoneGuard can be disposed of safely by incineration. The products of complete combustion are carbon dioxide and water which are found naturally in atmosphere and are not considered toxic to human beings for the environments. Upon combustion with insufficient air, carbon monoxide and gaseous hydrocarbons may be generated. See also section entitled: "FIRE FIGHTING MEASURES".

Modern incinerators can handle widely varying concentrations of plastic materials. Their efficient operation depends on the proper ratio of plastic and organic material, such as paper, in the waste to be burned, and an adequate supply of air to insure complete combustion. Incinerating ZoneGuard requires burning temperatures in the 1500-1900°F (816-1038°C) range to burn smoke and combustible gases. 100-300% hourly heat release rate (feed rate) should be kept at or below 12,000 BTU per cubic foot (4.47 x 10 joules per cubic meter) of combustion space. It is preferable to mix ZoneGuard 50% with

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waste paper because when burned ZoneGuard can release about 2.5 times the heat released by cellulosic products.

ZoneGuard waste, provided it has not been contaminated with an toxic material, has been shredded or pelletized and reused for extruded plastic applications.

Food and Drug Administration (FDA)

All styles of Lakeland's ZoneGuard are suitable for applications involving direct food contact.

Comprehensive Environmental Response, Compensation and Liability Act (Superfund)

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or "Superfund" levies a tax on hazardous waste materials expected to remain at a hazardous waste disposal facility after its closure (i.e. landfills). ZoneGuard is not regulated as hazardous waste and is not subject to this Superfund tax.

Emergency Planning and Community Right-To-Know Act (EPCRA)

ZoneGuard contains no chemicals in concentrations reportable under Section 313 of EPCRA.

California Safe Drinking Water and Toxic Enforcement Act 1988 (Proposition 85)

ZoneGuard contains none of the substances known to the state of California to cause cancer or reproductive toxicity.

Coalition of New England Government (CONEG)

ZoneGuard meets the requirements for heavy metal content.

Pennsylvania and New Jersey Right-To-Know Laws

ZoneGuard is non-hazardous and not subject to provisions of the Pennsylvania and New Jersey Right-To-Know laws.

OTHER INFORMATION**NFPA, NPCA-HMIS**

Health	: 0
Flammability	: 1
Reactivity	: 0

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PERSONAL PROTECTION RATING MUST BE SUPPLIED BY USER DEPENDING ON USE CONDITIONS. CHOICE OF SPUNBONDED POLYPROPYLENE FABRIC WEIGHTS ARE DETERMINED BY USER AT BETWEEN 30G/M² AND 60G/M² AS RECOMMENDED BY EPA, DUE TO DIFFERENT HEAT STRESS LEVELS AND HOT ENVIRONMENTS.

CAUTION: DO NOT USE IN MEDICAL APPLICATIONS INVOLVING PERMANENT OR TEMPORARY IMPLANTATION IN THE HUMAN BODY OR CONTACT WITH BODY FLUIDS. FOR OTHER MEDICAL APPLICATIONS CALL LAKELAND INDUSTRIES, INC. AT (631) 981-9700.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

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ZoneGuard is a trademark of Lakeland Industries, Inc.