

## AKD WAX (Alkyl Ketene Dimer)

### GENERAL INFORMATION

AKD WAX is a kind of fiber reactive neutral sizing agent, with high content of effective component, high iodine value and low acidity. It is an efficient sizing agent, especially suitable for the environmental protection requirements.

### SPECIFICATION

#### AKD 1840

Items	Specification
Appearance	Pale Yellow Wax
Assay	≥88%
Iodine Value	≥44g I <sub>2</sub> /100g
Acid Value	≤5mg KOH/g
Melting Point	≥47°C

#### AKD 1865

Items	Specification
Appearance	Pale Yellow Wax
Assay	≥88%
Iodine Value	≥43g I <sub>2</sub> /100g
Acid Value	≤5mg KOH/g
Melting Point	≥50°C

### APPLICATION

AKD WAX is pale yellow waxy flakes or pellets; it is widely used in the paper industry as sizing agent. After sizing with AKD emulsion, it can make paper less water absorbing and controls its printing properties.

### SAFETY

AKD WAX may be stimulated to skin and eyes, it is recommended to use gloves and protective glasses when use. If come into direct contact with eye or skin, immediately rinse with plenty of water at least 15 minutes.

*Read and understand the Material Safety Data Sheet (MSDS) or contact Lanya Chemical representative for more safety information before using this product.*

### DELIVERY & PACKAGE

AKD WAX is delivered in 25Kg bags.

*Package specification may vary with different supplying bases. Please consult with our company local representative for product package type.*

### STORAGE

Should be placed in cool and dry place, avoid sunshine and moisture.

# Material Safety Data Sheet



## Cellulose Containerboard – Sheet

### 1. Product Identification

TRADE NAME (AS LABELED):	Linerboard, White Top Liner, Corrugating Medium, Bleached Linerboard, Coated White Top Linerboard, Kraft Paper, Recyclacorr.
SYNONYMS:	Kraft Linerboard, Wet Strength linerboard, Grease Resistant linerboard, Premium White Top Linerboard, Recycled Linerboard, Recycled Medium, Fluting, Sack Kraft, Bleached Kraft Linerboard, White Top Kraft Liner.
CHEMICAL NAME/CLASS:	Cellulose Containerboard – Sheet.
MANUFACTURER'S NAME:	RockTenn
ADDRESS:	504 Thrasher Street Norcross, GA 30071
EMERGENCY PHONE:	(800) 424-9300 (CHEMTREC)
BUSINESS PHONE:	770-448-2193

### 2. Hazard Identification

**Primary Safety/Health Hazards: Warning:** Processed (e.g. fiberized) cellulose dusts may pose a combustible dust explosion hazard if dusts are suspended in air in sufficient concentrations, in a contained area and in proximity to an ignition source. Linerboard as supplied and shipped does not constitute a combustible dust explosion hazard. Users of this product should examine the potential to generate dusts during handling and processing and related combustibility hazards and controls. See additional comments in MSDS.

The primary health hazard posed by this product is thought to be due to exposure to cellulose dusts (reference "Section 8" below).

**Primary Route(s) of Exposure:** Inhalation, and/or eye contact.

**Medical Conditions Generally Aggravated by Exposure:** Cellulose dust may aggravate pre-existing respiratory conditions or allergies.

**Target organs:** Eyes and respiratory system.

**Signs and Symptoms of Exposure:**

**Acute Health Hazards:** Not applicable for product in purchased form. Dust may be a mechanical irritant to the eyes.

**Chronic Health Hazards:** Cellulose dust has not been shown to produce significant disease or toxic effects when exposure limits are met. Cellulose is poorly soluble and has a low order of toxicity.

**Carcinogen status:** Cellulose is not classified as a carcinogen by OSHA, NTP, or IARC in their reviews.

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### 3. Composition and Information on Ingredients

Component	CAS#	EC#	Hazard Symbols; Risk Phrases	Wt %
Cellulose	65996-61-4	265-995-8	NA	90 - 95
Calcium carbonate	471-34-1	207-439-9	NA	1 – 10
Starch	9005-25-8	232-679-6	NA	0 – 1

### 4. Emergency and First-Aid Procedures

**Ingestion:** Not likely to occur for product in purchased form.

**Eye Contact:** Dust may mechanically irritate the eyes, resulting in redness or watering. Treat dust in eye as foreign object. Flush with water to remove dust particles. Get medical help if irritation persists.

**Skin Contact:** Not anticipated for product in purchased form, wash with mild soap and water.

**Skin Absorption:** Product is not absorbed through the skin.

**Inhalation:** Excessive dust concentrations may cause unpleasant obstruction in the nasal passages.

Remove to fresh air. Get medical help if persistent irritation, severe coughing or breathing difficulty occurs.

**Note to Physician:** No special advice, treat symptomatically.

**HMIS Rating (Scale 0-4):** Health = 0 Fire = 1 Physical Hazard = 0

### 5. Fire and Explosion Data

**Flash Point (Method Used):** Not available for finished product.

**Flammable Limits:** LFL = **NOTE:** See below under "Unusual Fire and Explosion Hazards" UFL = Not available

**Extinguishing Media:** Use water, dry chemical, carbon dioxide or foam as appropriate for surrounding fire.

**Autoignition Temperature:** 450 – 572°F (232 – 300°C)

**Special Firefighting Procedures:** As in any fire wear NIOSH-approved self contained breathing apparatus and appropriate protective clothing.

**Unusual Fire and Explosion Hazards:** Linerboard processing (e.g. fiberization) may result in the release of cellulose fibers. Linerboard as supplied and shipped is highly unlikely to release sufficient dust to constitute a combustible dust explosion hazard. Depending on airborne concentration, moisture content, particle diameter, surface area and exposure to an ignition source, airborne cellulose dust may ignite and burn with explosive force in a contained area. Product dust may similarly deflagrate (combustion without detonation like a supersonic explosion) if ignited in an open or loosely contained area. Cellulose dust explosibility should be evaluated based on the conditions at each location processing this material. Caution should be taken in the processing, shipping, handling and use of these materials, particularly if they are in a dry state and dust is produced. Reference NFPA standards 654, 69 and the NFPA *Fire Protection Handbook* for guidance.

**NFPA Rating (Scale 0-4):** Health = 0 Fire = 1 Reactivity = 0

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## 6. Accidental Release Measures

**Steps to be Taken In Case Material Is Released or Spilled:** Sweep or vacuum up for recovery and disposal. Avoid creating dusty conditions whenever feasible. Maintain good housekeeping to avoid accumulation of cellulose dust on exposed surfaces. Use NIOSH approved filtering facepiece respirator ("dust mask") and goggles where ventilation is not possible and exposure limits may be exceeded or for additional worker comfort.

Other Precautions: Minimize compressed air blowdown or other practices that generate high dust levels.

## 7. Handling and Storage

**Precautions to be Taken In Handling and Storage:** Minimize dust generation and accumulation. Keep in cool, dry place away from open flame and other sources of ignition. Maintain good housekeeping to avoid accumulation of cellulose dust on exposed surfaces. Cellulose dust may pose a combustible dust hazard.

Because of the size of the rolls or bales, physical hazards are the predominant hazards. Safety shoes should be worn when moving rolls by hand or hand tools. Bales and rolls should be stored on flat, clean and even surfaces to prevent tipping over. All paper material should be stored away from open flames.

## 8. Exposure Control Measures, Personal Protection

### Exposure Limits/Guidelines:

Name	CAS#	Percent	Agency	Exposure Limits	Comments
Cellulose (C <sub>6</sub> H <sub>10</sub> O <sub>5</sub> ) <sub>n</sub>	65996-61-4	90-95	OSHA	PEL-TWA 15 mg/m <sup>3</sup> (PNOR) <sup>1</sup>	Total dust
			OSHA	PEL-TWA 5 mg/m <sup>3</sup> (PNOR) <sup>1</sup>	Respirable dust
			ACGIH	TLV-TWA 10 mg/m <sup>3</sup> Cellulose	Total dust
Calcium carbonate (CaCO <sub>3</sub> )	471-34-1	1-10	OSHA	PEL-TWA 15 mg/m <sup>3</sup> (PNOR) <sup>1</sup>	Total dust
			OSHA	PEL-TWA 5 mg/m <sup>3</sup> (PNOR) <sup>1</sup>	Respirable dust fraction
			ACGIH	TLV-TWA 3 mg/m <sup>3</sup> (PNOS) <sup>2</sup>	Respirable particles
			ACGIH	TLV-TWA 10 mg/m <sup>3</sup> (PNOS) <sup>2</sup>	Inhalable particles
Starch (C <sub>6</sub> H <sub>10</sub> O <sub>5</sub> ) <sub>n</sub>	9005-25-8	0-1	OSHA	PEL-TWA 15 mg/m <sup>3</sup>	Total dust
			OSHA	PEL-TWA 5 mg/m <sup>3</sup>	Respirable dust fraction
			ACGIH	TLV-TWA 10 mg/m <sup>3</sup>	Total dust

<sup>1</sup>OSHA particulate not otherwise regulated (PNOR)

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## 8. Exposure Control Measures, Personal Protection (cont'd.)

<sup>2</sup> ACGIH particulate not otherwise specified (PNOS)

### Personal Protective Equipment:

**RESPIRATORY PROTECTION** – Use NIOSH-approved filtering face piece respirator (“dust mask”) and goggles where ventilation is not possible and exposure limits may be exceeded or for additional worker comfort or symptom relief when fiberization of the linerboard occurs. Use respiratory protection in accordance with regulatory requirements such as the OSHA respiratory protection standard 29 CFR 1910.134.

**PROTECTIVE GLOVES** – Not required. However, cloth, canvas, or leather gloves are recommended to minimize potential mechanical irritation or cuts from handling product.

**EYE PROTECTION** – Approved goggles or tight fitting safety glasses are recommended when excessive exposures to dust may occur (e.g. during clean up) and when eye irritation may occur.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT** – Not applicable for product in purchased form. Outer garments may be desirable in extremely dusty areas.

**WORK/HYGIENE PRACTICES** – Follow good hygienic and housekeeping practices. Clean up areas where cellulose dust settles to avoid excessive accumulation of this combustible material. Minimize compressed air blowdown or other practices that generate high airborne-dust concentrations.

### Ventilation:

**LOCAL EXHAUST** – Provide local exhaust as needed so that exposure limits are met. Use with adequate ventilation to ensure exposure levels are maintained below the limits provided above. Use local exhaust ventilation, and process enclosure if necessary, to control airborne dust. Ventilation to control dust should be considered where potential explosive concentrations and ignition sources are present. The design and operation of any exhaust system should consider the possibility of explosive concentrations of cellulose dust within the system. See “SPECIAL” section below.

**MECHANICAL (GENERAL)** – Provide general ventilation in processing and storage areas so that exposure limits are met.

**SPECIAL** – Ensure that exhaust ventilation and material transport systems involved in handling this product contain explosion relief vents or suppression systems designed and operated in accordance with applicable standards if the operating conditions justify their use.

## 9. Physical/Chemical Properties

**Physical Description:** Paper sheets, rolls, or bales. Brown in color or white if bleached.

**Boiling Point (@ 760 mm Hg):** Not applicable

**Evaporation Rate (Butyl Acetate = 1):** Not applicable

**Freezing Point:** Not applicable

**Melting Point:** Not applicable

**Molecular Formula:** Not applicable

**Molecular Weight:** Not applicable

**Oil-water Distribution Coefficient:** Not applicable

**Odor Threshold:** Not available

**pH:** Not applicable

**Solubility in Water (% by weight):** Not applicable

**Specific Gravity (H<sub>2</sub>O = 1):** 0.6-0.8

**Vapor Density (air = 1; 1 atm):** Not applicable

**Vapor Pressure (mm Hg):** Not applicable

**Viscosity:** Not applicable

**% Volatile by Volume [@ 70°F (21°C)]:** Not applicable

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**10. Stability and Reactivity**

**Stability:**  Unstable  Stable  
**Conditions to Avoid:** Not applicable  
**Incompatibility (Materials to Avoid):** Avoid open flame, sparks and other sources of ignition.  
**Hazardous Decomposition or By-Products:** Combustion products include carbon monoxide, carbon dioxide and fine particulate in the form of smoke.  
**Hazardous Polymerization:**  May occur  Will not occur  
**Sensitivity to Mechanical Impact:** Not applicable  
**Sensitivity to Static Discharge:** Not applicable

**11. Toxicological Information**

**Toxicity Data:** None available for product in purchased form.  
**Carcinogenicity:**  
IARC: Listed by IARC - No  
NTP: Listed by NTP - No  
OSHA: Listed by OSHA – No  
**Reproductive effects:** Not available.  
**Teratogenic effects:** Not available.  
**Mutagenic effects:** Not available.  
**Target Organs:** Respiratory system and eyes.

**12. Ecological Information**

**Environmental Fate:** Cellulose fiber slowly biodegrades in water (half life range 1 mo – 1 yr in freshwater and coastal seawater). Cellulose fiber persists in arid soil (landfills).  
**Environmental Toxicity:** Not available.

**13. Disposal Considerations**

**Waste Disposal Method:** Dispose of in accordance with federal, state, and local regulations. Cellulose is not listed under any sections of the Resource Conservation and Recovery Act (RCRA) or Canadian National Pollution Release Inventory (NPRI). Follow all applicable federal, state, provincial and local regulations. It is the user's responsibility to determine proper disposal methods.

**14. Transport Information**

Mode: (Air, Land, water) Not regulated as a hazardous material by the U.S. Department of Transportation. Not listed as a hazardous material in Canadian Transportation of Dangerous Goods (TDG) regulations. Not listed as a hazardous material for IATA, and IMDG. Not listed as dangerous goods by the European Agreement concerning the international carriage of dangerous goods by road (ADR).

**Proper Shipping Name:** Not applicable  
**Hazard Class:** Not applicable  
**UN/NA ID Number:** Not applicable  
**Packing Group:** Not applicable  
**DOT labels required:** Not applicable

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## 15. Regulatory Information

**TSCA:** All ingredients of this product are either listed on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

**CERCLA:** This product does not contain ingredients which are subject to the reporting requirements of CERCLA.

**DSL:** Cellulose is listed on the Canadian Domestic Substance List.

**European REACH:** Cellulose is exempted from registration due to being listed in Annex IV of the REACH regulation.

**ENCS:** Cellulose is not listed or is exempt from the Japanese Existing and New Chemical Substances List as regulated by the Ministry of International Trade and Industry.

**OSHA:** This product, as shipped, is not regulated as a OSHA hazardous chemical, however, cellulose dust is a regulated hazard under the OSHA Hazard Communication Standard [29 CFR 1910.1200] when it becomes mechanically processed and airborne.

**SARA 313 Information:** This product does not contain any chemical ingredient (s) with known CAS numbers that exceed the *de minimis* reporting levels established by SARA Title III, section 313 and 40 CFR section 372.

**SARA 311/312 Hazard Category:** This product has been reviewed according the EPA "Hazard Categories: promulgated under SARA Title III, Sections 311 and 312 and is considered, under applicable definitions, to meet the following categories:

An immediate (acute) health hazard	No
A delayed (chronic) health hazard	No
A corrosive hazard	No
A fire hazard	No
A reactivity hazard	No
A sudden release hazard	No

**WHMIS Classification:** Not considered a controlled product.

## 16. Additional Information

**Date Prepared:** 08/24/2011

**Date Revised:** NA

**Prepared By:** RockTenn Safety and Health Department.

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### Disclaimer:

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**16. Additional Information (cont'd.)****Definition of Common Terms:**

ACGIH	= American Conference of Governmental Industrial Hygienists
C	= Ceiling Limit
CAS#	= Chemical Abstracts System Number
CERCLA	= Comprehensive Environmental Response, Compensation, and Liability Act
DOT	= U. S. Department of Transportation
DSL	= Domestic Substance List
EC50	= Effective concentration that inhibits the endpoint to 50% of control population
ENCs	= Japanese Existing and New Chemical Substances List
EPA	= U.S. Environmental Protection Agency
HMIS	= Hazardous Materials Identification System
IARC	= International Agency for Research on Cancer
IATA	= International Air Transport Association
IMDG	= International Maritime Dangerous Goods
LC50	= Concentration in air resulting in death to 50% of experimental animals
LCLo	= Lowest concentration in air resulting in death
LD50	= Administered dose resulting in death to 50% of experimental animals
LDLo	= Lowest dose resulting in death
LEL	= Lower Explosive Limit
LFL	= Lower Flammable Limit
MSHA	= Mine Safety and Health Administration
NA	= Not Applicable
NIOSH	= National Institute for Occupational Safety and Health
NFPA	= National Fire Protection Association
NPRI	= Canadian National Pollution Release Inventory
NTP	= National Toxicology Program
OSHA	= Occupational Safety and Health Administration
PEL	= Permissible Exposure Limit
PNOR	= Particulate Not Otherwise Regulated
PNOS	= Particulate Not Otherwise Stated
RCRA	= Resource Conservation and Recovery Act
REACH	= Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	= Short-Term Exposure Limit (15 minutes)
STP	= Standard Temperature and Pressure
TCLo	= Lowest concentration in air resulting in a toxic effect
TDG	= Canadian Transportation of Dangerous Goods
TDLo	= Lowest dose resulting in a toxic effect
TLV	= Threshold Limit Value
TSCA	= Toxic Substance Control Act
TWA	= Time-Weighted Average (8 hours)
UFL	= Upper Flammable Limit
WHMIS	= Workplace Hazardous Materials Information System

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