



(MATERIAL) SAFETY DATA SHEET

I. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: **Pencat® 700**

SYNONYM(S): Starch, 2-hydroxy-3 (trimethylammonio) propyl ether, chloride;
Quaternary cationic starch

SUGGESTED USE: For industrial applications only. Not for human or animal consumption.

COMPANY: Penford Products Co.
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24-HOUR EMERGENCY (SPILL, LEAK, FIRE, EXPOSURE, ACCIDENT) TELEPHONE:
INSIDE USA AND CANADA: 800-424-9300 (CHEMTREC)
OUTSIDE USA AND CANADA: +1 703-527-3887 (CHEMTREC)

II. HAZARDS IDENTIFICATION

GHS CLASSIFICATION AND LABEL ELEMENTS

Category: Combustible Dust (OSHA Defined)
Signal Word(s): Warning
Hazard Statement(s): May form combustible dust concentrations in air
Pictogram(s): None
Precautionary Statement(s): None

EMERGENCY OVERVIEW

Warning! Fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.
May produce a nuisance dust which may mechanically irritate the respiratory tract and eyes.

HMIS CLASSIFICATION

Health Hazard: 0
Fire Hazard: 1
Physical Hazard: 0

NFPA RATING

Health Hazard: 0
Fire Hazard: 1
Instability Hazard: 0
Special Hazard: None

III. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Common Name/Synonyms	Chemical Name	% by Weight
56780-58-6	Pencat® 700	Starch, 2-hydroxy-3 (trimethylammonio) propyl ether, chloride	87.5-90%

IV. FIRST AID MEASURES

INHALATION: Move to fresh air. If symptoms persist, get medical attention.



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SKIN CONTACT: Wash with water.

EYE CONTACT: Wash out with clean water. If symptoms develop, get medical attention.

INGESTION: Rinse mouth with water. If symptoms develop, get medical attention.

V. FIRE-FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: Water

UNUSUAL FIRE/EXPLOSION HAZARDS, SPECIAL FIRE-FIGHTING PROCEDURES: This product is a combustible dust and as such is a potential fire hazard/dust explosion hazard. Avoid creation of airborne dust. Fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. Practice good housekeeping to prevent dust accumulation on overheads and equipment. Avoid sparks, flames, and sources of static electricity.

DECOMPOSITION PRODUCTS: CO₂, H₂O, and typical combustion by-products.

PROTECTIVE EQUIPMENT: Self-contained breathing apparatus.

VI. ACCIDENTAL RELEASE MEASURES

PROCEDURE FOR RELEASE OR SPILL: Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Nonsparking tools should be used. Wear NIOSH approved dust mask and clean up using methods that minimize the formation of airborne dust. See section XIII for disposal considerations.

NEUTRALIZING CHEMICALS: Not required.

VII. HANDLING & STORAGE

HANDLING: Minimize the creation of airborne dust. Practice good housekeeping in handling areas to ensure that dust does not accumulate on surfaces. Ensure starch handling systems and electrical equipment are designed and maintained in accordance with NFPA, NEC, OSHA, and other standards/regulations. Pneumatic conveying systems should be constructed of electrically conductive materials and properly grounded. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

STORAGE: Practice good housekeeping in storage areas. Store away from heat, sparks, or other flame sources.

VIII. EXPOSURE CONTROLS/ PERSONAL PROTECTION

EXPOSURE LIMITS:

OSHA PEL: Nuisance Dust: 5 mg/m³ (respirable dust), 15 mg/m³ (total dust)

ACGIH (GUIDELINE): Particles Not Otherwise Specified [PNOS]: 3 mg/m³ (respirable), 10 mg/m³ (inhalable)

VENTILATION: Use appropriate local exhaust ventilation. It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

EYE PROTECTION: Recommend safety glasses with side shields as good industrial hygiene practice.

RESPIRATORY PROTECTION: Wear NIOSH approved dust mask in situations where airborne concentrations may exceed the OSHA PEL for nuisance dusts.

SKIN PROTECTION: Gloves are recommended as good industrial hygiene practice.



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COMBUSTIBLE DUST: Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

IX. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White to off-white powder	EXPLOSIVE LIMITS:	See Dust Explosion Hazard Summary
ODOR:	Neutral odor		
ODOR THRESHOLD:	Not determined		
pH:	N/A	VAPOR PRESSURE:	N/A
MELTING POINT:	N/A	VAPOR DENSITY:	N/A
FREEZING POINT:	N/A	RELATIVE DENSITY:	1.5-1.6
BOILING POINT:	N/A	SOLUBILITY(IES):	0-7% in cold water
BOILING RANGE:	N/A	PARTITION COEFFICIENT:	
FLASH POINT:	N/A	(N-OCTANOL/ WATER):	N/A
EVAPORATION RATE:	N/A	AUTO-IGNITION TEMP:	330-520°C
FLAMMABILITY:	Combustible Dust	DECOMPOSITION TEMP:	Not determined
FLAMMABLE LIMITS:	N/A	VISCOSITY:	N/A

DUST EXPLOSION HAZARD SUMMARY (Estimated, based on similar materials)

Dust Class:	ST1	K _{St} (bar – m/s):	128-158
P _{max} (bar):	9.7-10.2	MIE (mJ):	300
MEC (g/m ³):	60	% Combustible:	>95%
Autoignition Temp, MIT Cloud (°C):	330-520	Dust Layer Flammability:	Class 2
Autoignition Temp, MIT Layer (°C):	380-450	Self-heating:	Not expected
Resistivity (Ωm):	>10 ³	Particle Size Distribution:	10-40 µm
Chargeability:	Yes	Moisture Content:	10-12.5%

X. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable

HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

CONDITIONS TO AVOID: Store away from heat, sparks, or other flame sources.

INCOMPATIBLE MATERIALS: Strong oxidizers

DECOMPOSITION PRODUCTS: CO₂, H₂O, and typical combustion by-products.

XI. TOXOCOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS (ACUTE AND CHRONIC):

INHALATION: This product can produce a nuisance dust which may irritate the respiratory tract. Avoid prolonged or repeated inhalation of dust.

SKIN CONTACT: No hazard.

SKIN ABSORPTION: No hazard.

EYE CONTACT: Particulates may scratch eye surfaces and cause mechanical irritation.

INGESTION: Low hazard for typical industrial handling. Not classified as acutely toxic.

CARCINOGENICITY: This material is not considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or OSHA.



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XII. ECOLOGICAL INFORMATION

AQUATIC TOXICITY CLASSIFICATION: N/A

XIII. DISPOSAL CONSIDERATIONS

WASTE CLASSIFICATION: Unused product and packaging do not exhibit a characteristic of and are not listed as EPA hazardous waste. Consult state and local regulations for local requirements.

DISPOSAL METHOD: Prior to disposal, all disposal procedures should be reviewed with state and local regulatory agencies. If local approval is obtained, small quantities may be sent to local landfill or washed to sanitary sewer. Larger quantities may require special waste authorizations or controlled release to sanitary sewer.

XIV. TRANSPORT INFORMATION

DOT (US): Not regulated.

XV. REGULATORY INFORMATION

TSCA: All ingredients/components are listed on the TSCA registry.

SUPERFUND AMENDMENT AND REAUTHORIZATION ACTION OF 1986 (SARA, TITLE III):

SARA 302: No ingredients/components are subject to the reporting requirements of SARA 302.

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SARA 311/312 Physical and Health Hazards:

Fire:	Yes (Combustible Dust)
Pressure:	No
Reactivity:	No
Immediate:	No
Delayed (Chronic):	No

SARA 313: No ingredients/components above threshold (De Minimis) reporting levels.

CERCLA REPORTABLE QUANTITY (RQ): No ingredients/components have a CERCLA RQ.

XVI. OTHER INFORMATION

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling. The information contained in this bulletin is, to our best knowledge, true and accurate. However, since the conditions of use are beyond our control, we disclaim all liability in connection with the use of the information, recommendations contained herein. Furthermore, nothing contained herein shall be construed as a recommendation to use a product in conflict with any existing patents covering material or its use.

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