

Material Safety Data Sheet (MSDS / SDS)

Modified Starches - All Grades (API 13 Drilling, Cross-Linked, Cold Swelling, Hot Swelling, Dextrins, Cationic, Oxidized, Acid-Modified, Acetylated)

SECTION 1: Identification

Product Name	Modified Starch (Various Grades) and Dextrin
Synonyms	Modified Starch, API 13 Drilling Starch, Cross-Linked Starch, Cold Swelling Starch, Hot Swelling Starch, Dextrin, Pregelatinized Starch, Cationic Starch, Oxidized Starch, Acid-Modified Starch, Thin-Boiling Starch, Acetylated Starch, Starch Acetate
CAS No.	9005-25-8 (Starch, all modified starch grades); 9004-53-9 (Dextrin)
Recommended Use	Drilling fluid additive (API 13 grade); paper wet-end additive (Cationic grade); food processing, textile sizing, paper coating and adhesive applications (all grades)
Manufacturer / Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
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SECTION 2: Hazard(s) Identification

GHS Classification: Not classified as hazardous under GHS for acute health or environmental hazards based on available data. Combustible organic dust; may cause mild irritation as a nuisance dust.

Signal Word: None (not classified) - general good-handling-practice and combustible-dust precautions apply

Hazard Statements:

- Not classified as a hazardous substance or mixture under GHS/CLP for acute health or environmental hazards based on available data

- Combustible organic dust – finely divided starch/dextrin powder dispersed in air can pose a combustible dust hazard in bulk processing (silos, pneumatic conveying, bag dumping)
- May cause mild, transient irritation to eyes and respiratory tract as a nuisance dust

Precautionary Statements:

- P210 – Keep away from heat, hot surfaces, sparks, open flames – No smoking
- P241 – Use explosion-proof electrical/ventilating/lighting equipment in dusty environments
- P264 – Wash hands thoroughly after handling
- P271 – Use only outdoors or in a well-ventilated area
- P280 – Wear protective gloves/eye protection

SECTION 3: Composition / Information on Ingredients

Component	CAS No.	Concentration (w/w)
Modified Starch (API 13, Cross-Linked, Cold Swelling, Hot Swelling, Cationic, Oxidized or Acid-Modified grade)	9005-25-8	> 95%
Acetylated Starch (starch acetate)	9005-25-8	> 95% (acetyl content max 2.5%, see TDS)
Dextrin (heat/acid-converted starch)	9004-53-9	> 90% (Dextrin grade only)
Moisture / Residual Modification Reagent (grade dependent)	–	< 13% (combined)

SECTION 4: First-Aid Measures**Eye Contact**

Rinse with plenty of water for several minutes to remove dust particles. Seek medical attention if irritation persists.

Skin Contact

Wash with soap and water. Generally non-irritating; seek medical attention if irritation develops.

Inhalation

Move to fresh air. If coughing or respiratory discomfort from dust persists, seek medical attention.

Ingestion

Rinse mouth with water. Not expected to be harmful – starch and dextrin are widely regarded as having a favourable safety profile and are used in food applications at appropriate grades. Seek

medical attention if discomfort occurs.

SECTION 5: Fire-Fighting Measures

- Combustible organic solid; finely divided dust (starch or dextrin) can pose a combustible dust explosion hazard in confined spaces such as silos and conveying systems
- Suitable extinguishing media: water spray/fog, foam, CO₂, dry chemical – avoid methods that disperse settled dust near an ignition source
- Fire-fighters should wear SCBA in enclosed or heavily smoke-logged conditions

SECTION 6: Accidental Release Measures

- Avoid generating dust during clean-up; use damp cleaning methods or HEPA-filtered vacuum where practical
- Wetted material becomes very slippery – clean spill area promptly to prevent a slip hazard
- Sweep or vacuum into suitable containers for reuse or disposal, keeping away from ignition sources

SECTION 7: Handling and Storage

- Avoid generating and inhaling dust; use local exhaust ventilation and dust-collection systems at bulk-handling points (bag dumping, milling, pneumatic conveying)
- Bond and ground equipment during bulk powder transfer to control static discharge – combustible dust precaution
- Store in a cool, dry, well-ventilated warehouse away from moisture – all grades are hygroscopic and susceptible to microbial spoilage if wetted
- Keep bags/containers sealed when not in use; keep away from open flame and ignition sources in bulk storage/processing areas

SECTION 8: Exposure Controls / Personal Protection

Occupational

No specific OEL established for starch/dextrin; treat as

Exposure Limits	Particulates Not Otherwise Regulated (nuisance dust), general reference 10–15 mg/m ³ total dust, 8-hr TWA
Engineering Controls	Local exhaust ventilation and dust collection at bulk-handling points; explosion-proof electrical equipment in dusty areas
Eye/Face Protection	Safety glasses or goggles recommended in dusty conditions
Hand Protection	General-purpose work gloves sufficient for routine handling
Respiratory Protection	Dust mask (N95 or equivalent) recommended where airborne dust levels are elevated

SECTION 9: Physical and Chemical Properties

Property	Unit	Value
Appearance	–	White to yellowish-tan powder (colour varies by grade – see individual TDS)
Odour	–	Odourless to faint characteristic odour
Solubility in Water	–	Cold-water soluble (Cold Swelling, Dextrin) or requires heating to gelatinize (Hot Swelling, Cross-Linked, API 13)
pH (Aqueous Solution)	–	3.0 – 7.5 (grade dependent – see individual TDS)
Flash Point	–	Not applicable (solid); combustible dust hazard applies to fine powder in all grades

SECTION 10: Stability and Reactivity

- Stable under normal, dry conditions of storage, handling and use
- Hygroscopic – absorbs moisture from air; may support microbial/mould growth if stored wet

- Combustible dust hazard when finely dispersed in air across all grades – avoid ignition sources during bulk handling
- Incompatible materials: strong oxidising agents

SECTION 11: Toxicological Information

- Very low acute oral and dermal toxicity across all grades; starch and dextrin are widely regarded as having a favourable safety profile consistent with their acceptance in food, pharmaceutical and personal care applications at appropriate certified grades
- Not classified as carcinogenic, mutagenic, or toxic to reproduction based on available information for any grade covered by this SDS
- Industrial/technical grades covered by this SDS (including the API 13 drilling grade) are not certified for food or pharmaceutical use unless separately verified against the applicable standard

SECTION 12: Ecological Information

- Not classified as hazardous to aquatic organisms under GHS criteria based on available data
- Readily biodegradable, consistent with published data for starch-derived materials
- Large releases to waterways may temporarily affect biological oxygen demand (BOD) as the material biodegrades – avoid unnecessary bulk release as general environmental good practice

SECTION 13: Disposal Considerations

- Dispose of product and packaging in accordance with local, state and national regulations
- Not expected to require classification as hazardous waste under standard criteria
- Empty bags may retain residual dust – handle and dispose of per label and local regulations

SECTION 14: Transport Information

UN Number	Not applicable – not classified as Dangerous Goods
Proper Shipping Name	Not regulated for transport (IMDG / ADR / IATA / RID)
Transport Hazard Class	Not classified
Packing Group	Not applicable
Environmental Hazards	None identified under standard transport classification criteria

SECTION 15: Regulatory Information

- Starch and dextrin are widely listed on major chemical inventories (TSCA, REACH, ECL, etc.) as existing/registered substances, and are broadly accepted food-contact-adjacent materials at appropriate certified grades
- The API 13 drilling grade is manufactured and tested to API 13A / ISO 13500 oilfield specifications – this is a performance/quality standard, not a safety classification
- Buyers/importers should confirm labelling and inventory requirements applicable to their specific jurisdiction and end-use; food-contact certification, where required, must be separately verified for the relevant grade
- This single SDS covers all nine modified starch/dextrin grades referenced in the accompanying TDS documents (API 13 Drilling, Cross-Linked, Cold Swelling, Hot Swelling, Dextrins, Cationic, Oxidized, Acid-Modified, and Acetylated) – the hazard profile does not materially change across these grades, only the modification method, viscosity behaviour and application differ

SECTION 16: Other Information

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This SDS has been compiled based on general industry data and knowledge for modified starch and dextrin products of this type as commercially supplied, covering API 13 Drilling Grade, Cross-Linked, Cold Swelling, Hot Swelling, Dextrin, Cationic, Oxidized, Acid-Modified, and Acetylated grades. It is intended as a general handling and safety guide and does not replace a batch-specific SDS from the manufacturing mill, which should be obtained and reviewed for each shipment where regulatory submission is required.

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