



SAFETY DATA SHEET

N-DULGE(TM) 320

1. Identification

Product identifier used on the label: N-DULGE(TM) 320
food starch

Other means of identification:
Chemical family: Modified Starch

Recommended use of the chemical and restrictions on use:

Recommended use: Food products

Restrictions on use: Not Available

**Name, address, and telephone number
of the chemical manufacturer, importer,
or other responsible party:**

SUPPLIER

Ingredion (Thailand) Co., Ltd
40/14 Moo 12, Bangna-Trad Road,
Bangplee, Samutprakarn 10540
Thailand
Tel: +662-725-0200 (business hours)

CHEMTREC - Emergency Telephone (Medical & Transport Incident With Product- 7Days/24 Hours)

The global (outside US) number: +1 703-741-5970

Australia: +(61)-290372994

China: 4001-204937

Hong Kong: 800-968-793*

India: 000-800-100-7141*

Indonesia: 001-803-017-9114*

Japan: +(81)-3-4520-9637

Malaysia: +(60)-392125794, 1-800-815-308*

New Zealand: +(64)-98010034

Philippines: +(63) 2-395-3308, 1-800-1-116-1020*

Singapore: +(65)-31581349, 800-101-2201*

South Korea: +(82) 070-7686-0086, 00-308-13-2549*

Taiwan: +886-2-7741-4207*, 00801-14-8954*

Thailand: 001-800-13-203-9987*

Vietnam: +(84)-444581938

* Phone numbers for countries marked with an asterisk must be dialed within the country

SDS Requests and general information, please contact Local Customer Service: See phone numbers in Section 16

2. Hazard(s) identification

Classification of the chemical in accordance with the Hazard Classification and Communication System of Hazardous Substances B.E. 2555 (2012):

GHS Hazard Symbols:	No hazard symbols required
GHS Classification:	Not Classified by GHS criteria
Signal Word:	No Signal Word needed.
Hazard Statements:	No Hazard Statement needed.
Precautionary Statements:	No Precautionary Statement needed.
Hazards not otherwise classified:	None known.

3. Composition/information on ingredients

Chemical Name	Common name and synonyms	CAS #	%
No hazardous components.			

4. First-aid measures

Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion:

Inhalation:	Remove to fresh air. Get medical attention if irritation persists.
Eye Contact:	If symptoms develop, obtain medical attention. Remove particles by irrigating with eye wash solution or clean water, holding the eyelids apart.
Skin Contact:	Wash skin with soap and water.
Ingestion:	None required.
Most important symptoms/effects, acute and delayed:	Possible physical irritant from dust particles. Potential for dust explosion.

Indication of immediate medical attention and special treatment needed, if necessary: None known.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media:

Suitable extinguishing media: Dry Chemical, CO2, Water Fog, Foam

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Minimum ignition temperature of dust cloud- approx. 390 C. Minimum explosive concentration- approx. 80 mg/l. Minimum energy to ignite cloud by electrical spark- approx. 0.10 joules.

Hazardous combustion products: This product does not undergo spontaneous decomposition. Typical combustion products are carbon monoxide, carbon dioxide, nitrogen and water.

Special protective equipment and precautions for fire-fighters: No special procedures are required.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment as required.

Methods and materials for containment and cleaning up: Normal precautions for "nuisance dust" should be observed. Avoid prolonged inhalation of dust. Sweep up or vacuum up and place in suitable container for disposal.

7. Handling and storage

Precautions for safe handling: Normal precautions for handling chemicals are applicable.

Conditions for safe storage, including any incompatibilities:

Safe storage conditions:

Special Sensitivity: Not available

Sensitivity to Static Electricity: Yes

Other Precautions: Use care to minimize dust generation in normal use conditions.

Avoid dispersing the powder in the air. Prevent buildup of powder on surfaces.

Materials to Avoid/Chemical No data available

Incompatibility:

8. Exposure controls/personal protection

OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety:

Chemical component	Thailand Exposure Limits (TWAs)	Thailand - Occupational Exposure Limits - STEL's	Thailand Exposure Limits (CEILs)
Not listed.			

This product can produce a nuisance dust which should be maintained below a time weighted average of 10 mg/m³.

Appropriate engineering controls: No data available

Individual protection measures, such as personal protective equipment:

Respiratory Protection: No data available

Respirator Type(s): NIOSH approved dust mask.

Eye protection: Safety glasses recommended.

Skin protection: Uniforms, coveralls, or a lab coat should be worn.

Gloves: The use of chemically resistant gloves is recommended.

Other protective equipment: No data available

General hygiene conditions: No data available

9. Physical and chemical properties

Appearance (physical state, color etc.):

Physical state: Powder.

Color: White

Odour: Starch

Odor Threshold: Not available

pH: Not available

pH in (1%) Solution: Approximately 6

Melting point/freezing point (°C):

Melting Point (°C):	Not available
Freezing point (°C):	No data available
Initial boiling point and boiling range (°C):	No data available
Flash Point (°C):	No data available
Flash Point Method:	Not available
Evaporation Rate:	Not applicable
Flammability (solid, gas):	Not available
Upper/lower flammability or explosive limits:	
Upper flammability or explosive limits:	Not available
Lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.5000000
Solubility(ies):	Insoluble
Partition coefficient: n-octanol/water:	Not available
Auto-ignition temperature (°C):	No data available
Decomposition temperature (°C):	Not available
Viscosity:	Not available
Heat of decomposition:	Not available
Volatiles by weight:	Not available
Volatile Organic Chemicals:	Not available
Molecular formula:	Not available
Molecular weight:	> 10000
Liquid density:	Not available
VOC (as applied*- 2% by wt hardener-less exempts and water):	NAP or
Bulk Density:	Not available

10. Stability and reactivity

Reactivity:	Not expected to be reactive
Chemical stability:	Stable
Possibility of hazardous reactions:	Hazardous polymerization will not occur.
Conditions to avoid (e.g., static	None known.

discharge, shock, or vibration):

Incompatible materials: No data available

Hazardous decomposition products: This product does not undergo spontaneous decomposition. Typical combustion products are carbon monoxide, carbon dioxide, nitrogen and water.

11. Toxicological information

Description of the various toxicological (health) effects and the available data used to identify those effects:

Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact): No data available

Target Organs Potentially Affected by Exposure: None known.

Chemical Interactions That Change Toxicity: None known.

Symptoms related to the physical, chemical and toxicological characteristics: No data available

Delayed and immediate effects and also chronic effects from short- and long-term exposure:

Ingestion Irritation: No data available

Ingestion Toxicity: None known.

Skin Contact: Based on available data, the GHS classification criteria are not met. Unlikely to cause harmful effects under recommended conditions of handling and use. Low order of toxicity.

Absorption: No data available

Inhalation Irritation: No data available

Inhalation Toxicity: No data available

Eye Contact: Based on available data, the GHS classification criteria are not met.

Chronic effects: None known.

Inhalation: No data available

Skin Contact: No data available

Skin Absorption: No data available

Ingestion: No data available

Sensitization: None known.



SAFETY DATA SHEET

N-DULGE(TM) 320

Mutagenicity: Based on available data, the GHS classification criteria are not met.
Reproductive and Developmental Toxicity: Based on available data, the GHS classification criteria are not met.
Carcinogenicity: Based on available data, the GHS classification criteria are not met.
STOT-single exposure: Based on available data, the GHS classification criteria are not met.
STOT-repeated exposure: Not applicable.
Aspiration hazard: Based on available data, the GHS classification criteria are not met.

Numerical measures of toxicity (such as acute toxicity estimates):

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
No data available			

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available): Low toxicity to aquatic organisms.

Ecological Toxicity Data:

Chemical Name	CAS #	Aquatic EC50 Crustacea	Aquatic ERC50 Algae	Aquatic LC50 Fish
No data available				

Persistence and degradability: None known.
Bioaccumulative potential: No data available
Mobility in soil: Unknown
Other adverse effects (such as hazardous to the ozone layer): None known.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging: Disposal should be in accordance with local, state or national legislation.

Empty Container Warnings: Empty containers may contain product residue; follow SDS and label warnings even after they have been emptied.

14. Transport information

Carriage of dangerous goods by road (DOT), rail or inland waterways:

UN number: No data available
UN Proper shipping name: Not Applicable
Transport hazard class(es): Not Applicable
Packing group, if applicable: Not Applicable
DOT Basic description: No data available

International carriage of dangerous goods by sea (IMDG/IMO):

UN number: No data available
UN Proper shipping name: Not Applicable
Transport hazard class(es): Not Applicable
Packing group, if applicable: Not Applicable

International carriage of dangerous goods by air (IATA):

UN number: No data available
UN Proper shipping name: Not Applicable
Transport hazard class(es): Not Applicable
Packing group, if applicable: Not Applicable

Environmental hazards (e.g., Marine pollutant (Yes/No)): Not available

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not available

Special precautions which a user needs to be aware of or needs to comply with in connection with transport or conveyance either within or outside their premises: Consult IMO regulations before transporting in bulk by ocean.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question:

TSCA This product is manufactured in compliance with all provisions of the Toxic Substances Control Act, 15 U.S.C. 2601 et. seq.

FDA 21CFR172.892.



SAFETY DATA SHEET

N-DULGE(TM) 320

Thailand - Hazardous Substance:

Chemical Name	CAS #	Hazardous Substances	Hazardous Substances - Duties and Civil Liabilities	Hazardous substances - FDA Responsible Substances
No data available				

16. Other information, including date of preparation or last revision.

Revision Date: 04-12-2021
Supersedes: 05-26-2020
Revision Number: 7
Reason for revision: New
FOR INFORMATION CONTACT: Thailand:
Ingredion (Thailand) Co., Ltd
Customer Service: +66-2-725-0200
Other Info: None known.

Disclaimer: The attached data has been compiled from sources which Ingredion Incorporated and the Ingredion group of companies, believe to be dependable and, to our knowledge and belief is accurate. However, Ingredion Incorporated and the Ingredion group of companies cannot make any warranty or representation respecting the accuracy or completeness of the data. We assume no responsibility for any liability or damages relating thereto, or for advising you regarding the protection of your employees, customers, or others. You should make your own tests to determine the applicability of such information to, or the suitability of any products for your specific use.
Ingredion Incorporated and the Ingredion group of companies expressly disclaims all warranties, expressed or implied, including but not limited to, warranties of merchantability, accuracy, fitness for use or for a particular purpose, and noninfringement. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to sales of products by Ingredion Incorporated and the Ingredion group of companies. The INGREDION mark and logo are trademarks of the Ingredion group of companies.