

SAFETY DATA SHEET

Diisobutylene

Section 1. Identification

GHS product identifier	Diisobutylene
Chemical name	Diisobutylene
Other means of identification	Pentene, 2,4,4-trimethyl-; Diisobutylene
Product use	Chemical Intermediate for antioxidants, surfactants, lube additives, plasticizers, and rubber chemicals.
Supplier's details	TPC Group One Allen Center, Suite 2000 Houston, TX, 77002, USA T 713-627-7474
company web address	www.tpcgrp.com
Emergency telephone number (with hours of operation)	800-424-9300 (Chemtrec - U.S.) +1-703-527-3887 (Chemtrec - International)

Section 2. Hazards identification

OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	FLAMMABLE LIQUIDS - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3 ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms



Signal word

Danger

Hazard statements

Highly flammable liquid and vapor.
May be fatal if swallowed and enters airways.
May cause drowsiness and dizziness.

Precautionary statements

Prevention

Wear protective gloves. Wear eye or face protection.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Keep container tightly closed.
Use only outdoors or in a well-ventilated area.
Avoid breathing vapor.

Section 2. Hazards identification

Response	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	Avoid contact with skin and clothing. Wash thoroughly after handling.
Hazards not otherwise classified	Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture	Substance
Chemical name	Diisobutylene
Other means of identification	Pentene, 2,4,4-trimethyl-; Diisobutylene

CAS number/other identifiers

CAS number	25167-70-8
Product code	Not available.

Ingredient name	%	CAS number
Diisobutylene	99.5	25167-70-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
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Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	No known significant effects or critical hazards.
Inhalation	Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
Skin contact	Defatting to the skin. May cause skin dryness and irritation.
Ingestion	Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Ingestion	Adverse symptoms may include the following: nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use dry chemical, CO ₂ , water spray (fog) or foam.
Unsuitable extinguishing media	Do not use water jet.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical	Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
large spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Do not swallow. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue
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Section 7. Handling and storage

Advice on general occupational hygiene

and can be hazardous. Do not reuse container.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Diisobutylene	AIHA WEEL (United States, 10/2011). TWA: 75 ppm 8 hours.

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Section 8. Exposure controls/personal protection

Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	Liquid.
Color	Clear.
Odor	Turpentine like.
Odor threshold	Not available.
pH	Not available.
Melting point	-93.5°C (-136.3°F)
Boiling point	101.4°C (214.5°F)
Flash point	-5°C (23°F)
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
lower and upper explosive (flammable) limits	Lower: Data Unavailable. Upper: 0.9%
Vapor pressure	6 kPa (44.7 mm Hg) @ 25°C (77°F)
Vapor density	4 [Air = 1]
Specific gravity	0.72 @ 15.6°C (60°F)
Solubility	Not available.
Solubility in water	Insoluble.
Partition coefficient n-octanol/water	4.55
Auto-ignition temperature	420°C (788°F)
Decomposition temperature	Not available.
Viscosity	Kinematic (room temperature): 0.00749 cm ² /s (0.749 cSt)
Molecular weight	112.1 g/mol
% Volatiles by volume	100
Reactivity in water	Does not react with water.

Section 10. Stability and reactivity

Reactivity	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.

Section 10. Stability and reactivity

Incompatible materials

Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous polymerization does not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Diisobutylene	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Mammal - species unspecified	>12200 mg/m ³ >3200 mg/kg >10000 mg/kg	4 hours - -

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Diisobutylene	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Diisobutylene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact

No known significant effects or critical hazards.

Inhalation

Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.

Skin contact

Defatting to the skin. May cause skin dryness and irritation.

Ingestion

Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

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Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Inhalation	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
Skin contact	Adverse symptoms may include the following: irritation dryness cracking
Ingestion	Adverse symptoms may include the following: nausea or vomiting

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

Short term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

long term exposure

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.

General	Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Diisobutylene	Acute EC50 1.2 mg/l Acute LC50 0.58 mg/m3	Daphnia Fish - Oncorhynchus mykiss	48 hours 96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	logP _{ow}	BCF	Potential
Diisobutylene	4.55	-	high

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Other adverse effects









No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	UN2050	UN2050	UN2050	UN2050	UN2050	UN2050
UN proper shipping name	DIISOBUTYLENE, ISOMERIC COMPOUNDS	DIISOBUTYLENE, ISOMERIC COMPOUNDS	DIISOBUTYLENE, ISOMERIC COMPOUNDS	DIISOBUTYLENE, ISOMERIC COMPOUNDS	DIISOBUTYLENE, ISOMERIC COMPOUNDS	DIISOBUTYLENE, ISOMERIC COMPOUNDS
Transport hazard class(es)	3	3	3	3	3	3
Transport label				 	 	
Packing group	II	II	II	II	II	II
Environmental hazards	No.	No.	No.	Yes.	Marine Pollutant: Yes	No.
Additional information	limited quantity Yes. Packaging instruction Passenger aircraft	Explosive limit and limited Quantity Index 1 Passenger Carrying	-	The environmentally hazardous substance mark is not required when transported in sizes of :55 L or	The marine pollutant mark is not required when transported in sizes of :55 L or :55 kg.	The environmentally hazardous substance mark may appear if required by other

Section 14. Transport information

Quantity limitation: 5 L Cargo aircraft Quantity limitation: 60 L Special provisions IB2, T4, TP1 Packaging Exceptions: 150, 306 Packaging Non-Bulk: 202 Packaging Bulk: 242	Road or Rail Index 5		:55 kg. Hazard identification number 33 limited quantity 1 L Tunnel code (D/E)	Emergency schedules (EmS) F-E, S-D	transportation regulations. Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 353 Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 364 limited Quantities - Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y341
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Special precautions for user

Transport within user's premises always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not available.

Section 15. Regulatory information

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)

Not listed

Clean Air Act Section 602 Class I Substances

Not listed

Clean Air Act Section 602 Class II Substances

Not listed

DEA list I Chemicals (Precursor Chemicals)

Not listed

DEA list II Chemicals (Essential Chemicals)

Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ

Not applicable.

SARA 311/312

Section 15. Regulatory information

Classification Fire hazard
Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Diisobutylene	100	Yes.	No.	No.	Yes.	No.

State regulations

Massachusetts This material is listed.
New York This material is not listed.
New Jersey This material is listed.
Pennsylvania This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia This material is listed or exempted.
Canada This material is listed or exempted.
China This material is listed or exempted.
Europe This material is listed or exempted.
Japan This material is listed or exempted.
Malaysia Not determined.
New Zealand This material is listed or exempted.
Philippines This material is listed or exempted.
Republic of Korea This material is listed or exempted.
Taiwan This material is listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	3
Physical hazards	0

Section 16. Other information

Caution HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2 STOT SE 3 Asp. Tox. 1	On basis of test data Expert judgment On basis of test data

History

Date of printing 06/24/2022

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Version 2.0

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References

Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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Section 16. Other information

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