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# BRONATE ADVANCED™ HERBICIDE

Version 3.0 / USA Revision Date: 09/18/2019
102000003214 Print Date: 09/19/2019

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**Product identifier** 

Trade name BRONATE ADVANCED™ HERBICIDE

Product code (UVP) 05947057

**SDS Number** 102000003214

**EPA Registration No.** 264-690

Relevant identified uses of the substance or mixture and uses advised against

**Use** Herbicide

**Restrictions on use**See product label for restrictions.

Information on supplier

Supplier Bayer CropScience

2 T.W. Alexander Drive

Research Triangle PK, NC 27709

USA

Responsible Department Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days) 1-800-334-7577

Product Information Telephone Number

1-866-99BAYER (1-866-992-2937)

### **SECTION 2: HAZARDS IDENTIFICATION**

# Classification in accordance with regulation HCS 29CFR §1910.1200

Aspiration hazard: Category 1

Carcinogenicity, Reproductive toxicity: Category 2 Acute toxicity(Oral, Inhalation): Category 4

Flammable liquids: Category 4

### Labelling in accordance with regulation HCS 29CFR §1910.1200





### Signal word: Danger

### **Hazard statements**

May be fatal if swallowed and enters airways.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.



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Harmful if swallowed or if inhaled.

Combustible liquid.

### **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Avoid breathing mist/ vapours/ spray.

Use only outdoors or in a well-ventilated area.

Keep away from open flames/hot surfaces. - No smoking.

IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.

Do NOT induce vomiting.

Rinse mouth.

IF exposed or concerned: Get medical advice/ attention.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Store locked up.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local regulation.

### **Hazards Not Otherwise Classified (HNOC)**

No physical hazards not otherwise classified.

No health hazards not otherwise classified.

### **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

Hazardous Component Name	CAS-No.	Concentration % by weight
Bromoxynil octanoate	1689-99-2	18.7
Bromoxynil heptanoate	56634-95-8	18.1
MCPA 2-ethylhexyl ester	29450-45-1	40.0
Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts	84989-14-0	2.8
2-Methylpropan-1-ol	78-83-1	1.4
Naphthalene	91-20-3	1.4
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	10.3

#### **SECTION 4: FIRST AID MEASURES**

#### **Description of first aid measures**

General advice When possible, have the product container or label with you when

calling a poison control center or doctor or going for treatment.

**Inhalation** Move to fresh air. If person is not breathing, call 911 or an ambulance,

then give artificial respiration, preferably mouth-to-mouth if possible.

Call a physician or poison control center immediately.



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Skin contact Take off contaminated clothing and shoes immediately. Wash off

immediately with plenty of water for at least 15 minutes. Call a

physician or poison control center immediately.

**Eye contact** Hold eye open and rinse slowly and gently with water for 15-20

minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center

immediately.

Ingestion Call a physician or poison control center immediately. Rinse out mouth

and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim

unattended.

Most important symptoms and effects, both acute and delayed

**Symptoms** To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

**Risks** Consideration should be given to the possibility that overexposure to

materials other than this product may have occurred. Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.

**Treatment** Appropriate supportive and symptomatic treatment as indicated by the

patient's condition is recommended. There is no specific antidote.

### **SECTION 5: FIREFIGHTING MEASURES**

Extinguishing media

Suitable Carbon dioxide (CO2), Dry chemical, Foam

**Unsuitable** High volume water jet

Special hazards arising from the substance or

mixture

Dangerous gases are evolved in the event of a fire., Nitrogen oxides (NOx), Sulphur oxides, Carbon monoxide (CO), Hydrogen chloride

(HCI), Hydrogen bromide (HBr)

Advice for firefighters

Special protective equipment for firefighters

Firefighters should wear NIOSH approved self-contained breathing

apparatus and full protective clothing.

**Further information** Evacuate personnel to safe areas. Keep out of smoke. Fight fire from

upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water

courses.

Flash point 61.1 °C

Auto-ignition temperatureNo data availableLower explosion limitNo data availableUpper explosion limitNo data availableExplosivityNot applicable



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#### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

**Precautions** Remove all sources of ignition. Isolate hazard area. Keep

unauthorized people away. Avoid contact with spilled product or

contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, acid

binder, universal binder, sawdust). Collect and transfer the product

into a properly labelled and tightly closed container. Clean

contaminated floors and objects thoroughly, observing environmental

regulations.

Additional advice Use personal protective equipment. If the product is accidentally

spilled, do not allow to enter soil, waterways or waste water canal. Do

not allow product to contact non-target plants.

**Reference to other sections** Information regarding safe handling, see section 7.

Information regarding personal protective equipment, see section 8.

Information regarding waste disposal, see section 13.

# **SECTION 7: HANDLING AND STORAGE**

Precautions for safe handling

and open container in a manner as to prevent spillage.

Advice on protection against fire and explosion

Keep away from heat and sources of ignition.

**Hygiene measures** Wash hands thoroughly with soap and water after handling and before

eating, drinking, chewing gum, using tobacco, using the toilet or

applying cosmetics.

Remove Personal Protective Equipment (PPE) immediately after

handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before

using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and

feed. Store in original container and out of the reach of children,

preferably in a locked storage area. Protect from freezing.



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# **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Control parameters**

Components	CAS-No.	Control parameters	Update	Basis
Bromoxynil octanoate	1689-99-2	0.21 mg/m3 (SK-SEN)		OES BCS*
2-Methylpropan-1-ol	78-83-1	50 ppm (TWA)	02 2012	ACGIH
2-Methylpropan-1-ol	78-83-1	150 mg/m3/50 ppm (REL)	2010	NIOSH
2-Methylpropan-1-ol	78-83-1	300 mg/m3/100 ppm (PEL)	n3/100 ppm	
2-Methylpropan-1-ol	78-83-1	150 mg/m3/50 ppm 1989 (TWA)		OSHA Z1A
2-Methylpropan-1-ol	78-83-1	150 mg/m3/50 ppm (TWA)	06 2008	TN OEL
2-Methylpropan-1-ol	78-83-1	150 mg/m3/50 ppm (TWA PEL)	08 2010	US CA OEL
Naphthalene	91-20-3	10 ppm (TWA)	02 2012	ACGIH
Naphthalene	91-20-3	50 mg/m3/10 ppm (REL)	2010	NIOSH
Naphthalene	91-20-3	75 mg/m3/15 ppm (STEL)	2010	NIOSH
Naphthalene	91-20-3	50 mg/m3/10 ppm (PEL)	02 2006	OSHA Z1
Naphthalene	91-20-3	75 mg/m3/15 ppm (STEL)	06 2008	TN OEL
Naphthalene	91-20-3	50 mg/m3/10 ppm (TWA)	06 2008	TN OEL
Naphthalene	91-20-3	0.5 mg/m3/0.1 ppm (TWA PEL)	10 2014	US CA OEL
Naphthalene	91-20-3	10 ppm (TLV)		OES BCS*
Solvent Naphtha (petroleum), heavy aromatic (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	03 2014	ACGIH
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	100 mg/m3 (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	1,600 mg/m3/400 ppm (TWA PEL)	08 2010	US CA OEL

\*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

**Biological occupational exposure limits** 



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Components	CAS-No.	Parameters	Biological specimen	Sampling time	Conc.	Basis
Naphthalene	91-20-3	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis		Sampling time: End of shift.		ACGI H BEI

### **Exposure controls**

### Personal protective equipment

In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment

based on actual or potential airborne concentrations and in

accordance with the appropriate regulatory standards and/or industry

recommendations.

Hand protection Chemical resistant nitrile rubber gloves

**Eye protection** Safety glasses with side-shields

**Skin and body protection** Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If

no such instructions for washables, use detergent and warm/tepid

water.

Keep and wash PPE separately from other laundry.

### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance light to dark brown

Physical State Liquid

Odor hydrocarbon-like
Odour Threshold No data available

**pH** 3.0 - 5.0 (1 %) (23 °C) (deionized water)

(as aqueous solution)

Vapor PressureNo data availableVapor Density (Air = 1)No data availableDensity1.17 g/cm³ (20 °C)Evaporation rateNo data availableBoiling PointNo data availableMelting / Freezing PointNo data available

Water solubility dispersible

Minimum Ignition Energy Not applicable



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**Decomposition** No data available

temperature

Partition coefficient: n-

octanol/water

Not applicable

Viscosity No data available

Flash point 61.1 °C

Auto-ignition temperatureNo data availableLower explosion limitNo data availableUpper explosion limitNo data availableExplosivityNot applicable

**Other information** Further safety related physical-chemical data are not known.

### **SECTION 10: STABILITY AND REACTIVITY**

Reactivity

Thermal decomposition No data available

**Chemical stability** Stable under recommended storage conditions.

Possibility of hazardous

reactions

No hazardous reactions when stored and handled according to

prescribed instructions.

**Conditions to avoid** Extremes of temperature and direct sunlight.

**Incompatible materials** Mineral acids, Strong bases, Strong oxidizing agents

**Hazardous decomposition** 

products

No decomposition products expected under normal conditions of use.

#### **SECTION 11: TOXICOLOGICAL INFORMATION**

**Exposure routes** Ingestion, Inhalation, Eye contact, Skin contact

**Immediate Effects** 

Eye Vapors and mists can cause irritation.Skin May cause irritation, redness, swelling.

**Ingestion** May cause nausea, vomiting, abdominal pain, weakness of arms

and/or legs, dizziness, loss of coordination. Aspiration of the swallowed or vomited product can cause severe pulmonary

complications. Harmful if swallowed.



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**Inhalation** May cause upper respiratory tract irritation, coughing, wheezing,

nausea, headache, depression.

Information on toxicological effects

Acute oral toxicity LD50 (Rat) 530 mg/kg

Acute inhalation toxicity LC50 (Rat) > 2.77 mg/l

Exposure time: 4 h

Determined in the form of liquid aerosol.

highest concentration tested

Acute dermal toxicity LD50 (Rabbit) > 5,050 mg/kg

**Skin corrosion/irritation** slight irritation (Rabbit)

Serious eye damage/eye

irritation

Mild eye irritation. (Rabbit)

Respiratory or skin

sensitisation

Skin: Non-sensitizing. (Guinea pig)

### Assessment STOT Specific target organ toxicity - repeated exposure

MCPA-2-ethylhexyl ester did not cause specific target organ toxicity in experimental animal studies. Bromoxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver. The observed effects do not appear to be relevant for humans. Bromoxynil heptanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver. The observed effects do not appear to be relevant for humans.

### Assessment mutagenicity

MCPA-2-ethylhexyl ester was not mutagenic or genotoxic in a battery of in vitro and in vivo tests. Bromoxynil octanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Bromoxynil heptanoate was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

### Assessment carcinogenicity

MCPA-2-ethylhexyl ester was not carcinogenic in lifetime feeding studies in rats and mice. Bromoxynil octanoate caused at high dose levels an increased incidence of tumours in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man. Bromoxynil heptanoate caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The mechanism of tumour formation is not considered to be relevant to man.

#### **ACGIH**

Naphthalene 91-20-3 Group A3 Solvent Naphtha (petroleum), heavy aromatic 64742-94-5 Group A3

**NTP** 

Naphthalene 91-20-3

**IARC** 

Naphthalene 91-20-3 Overall evaluation: 2B

**OSHA** 

None.



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### Assessment toxicity to reproduction

MCPA-2-ethylhexyl ester did not cause reproductive toxicity in a two-generation study in rats. Bromoxynil octanoate did not cause reproductive toxicity in a two-generation study in rats. Bromoxynil heptanoate did not cause reproductive toxicity in a two-generation study in rats.

### Assessment developmental toxicity

MCPA-2-ethylhexyl ester caused developmental toxicity only at dose levels toxic to the dams. MCPA-2-ethylhexyl ester caused a delayed foetal growth.

Bromoxynil octanoate caused a delayed foetal growth, an increased incidence of non-specific malformations. Bromoxynil octanoate caused developmental toxicity only at dose levels toxic to the dams

Bromoxynil heptanoate caused developmental toxicity only at dose levels toxic to the dams. Bromoxynil heptanoate caused a delayed foetal growth, an increased incidence of non-specific malformations.

#### **Further information**

Only acute toxicity studies have been performed on the formulated product.

The non-acute information pertains to the active ingredient(s).

#### SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 0.041 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient bromoxynil

octanoate.

LC50 (Lepomis macrochirus (Bluegill sunfish)) 0.029 mg/l

Exposure time: 96 h

The value mentioned relates to the active ingredient bromoxynil

heptanoate.

Toxicity to aquatic invertebrates

EC50 (Daphnia magna (Water flea)) 0.046 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient bromoxynil

octanoate.

EC50 (Daphnia magna (Water flea)) 0.031 mg/l

Exposure time: 48 h

The value mentioned relates to the active ingredient bromoxynil

heptanoate.

**Toxicity to aquatic plants** EC50 (Navicula pelliculosa (Freshwater diatom)) 0.043 mg/l

Exposure time: 72 h

The value mentioned relates to the active ingredient bromoxynil

octanoate.

**Biodegradability** MCPA-2-ethylhexyl ester:

rapidly biodegradable



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> Bromoxynil octanoate: Not rapidly biodegradable Bromoxynil heptanoate: Not rapidly biodegradable

**Koc** Bromoxynil octanoate: Koc: 639

Bromoxynil heptanoate: Koc: ca. 600

Bioaccumulation MCPA-2-ethylhexyl ester: Bioconcentration factor (BCF) 1

Does not bioaccumulate.

Bromoxynil octanoate: Bioconcentration factor (BCF) 230

Does not bioaccumulate. Bromoxynil heptanoate:

No data available, Does not bioaccumulate.

Mobility in soil MCPA-2-ethylhexyl ester: Mobile in soils

Bromoxynil octanoate: Slightly mobile in soils Bromoxynil heptanoate: Slightly mobile in soils

Additional ecological

information

No other effects to be mentioned.

**Environmental precautions** Do not apply directly to water, to areas where surface water is present

or to intertidal areas below the mean high water mark.

Do not contaminate surface or ground water by cleaning equipment or

disposal of wastes, including equipment wash water.

Do not apply when weather conditions favor runoff or drift.

Apply this product as specified on the label.

### **SECTION 13: DISPOSAL CONSIDERATIONS**

Waste treatment methods

Product Pesticide, spray mixture or rinse water that cannot be used according to

label instructions may be disposed of on site or at an approved waste

disposal facility.

**Contaminated packaging** Triple rinse containers.

Puncture container to avoid re-use.

Dispose of empty container in a sanitary landfill or by incineration, or, if

allowed by State/Provincial and local authorities, by burning.

If burned, stay out of smoke.

Follow advice on product label and/or leaflet.

RCRA Information Characterization and proper disposal of this material as a special or

hazardous waste is dependent upon Federal, State and local laws and

are the user's responsibility. RCRA classification may apply.

### **SECTION 14: TRANSPORT INFORMATION**



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1993 NA-Number Packaging group Ш

Marine pollutant Marine pollutant

Proper shipping name COMBUSTIBLE LIQUID, N.O.S.

> (BROMOXYNIL OCTANOATE, HEPTANOATE, SOLVENT NAPHTHA (PETROLEUM) HEAVY AROMATIC SOLUTION,

NAPHTHALENE)

RQ Reportable Quantity is reached with 6,993 lb of product.

**IMDG** 

**UN** number 3082 Class 9 Packaging group Ш Marine pollutant YES

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(BROMOXYNIL OCTANOATE, HEPTANOATE SOLUTION)

**IATA** 

**UN** number 3082 Class 9 Packaging group Ш Environm. Hazardous Mark YES

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(BROMOXYNIL OCTANOATE, HEPTANOATE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: COMPOUNDS, TREE OR WEED KILLING, N.O.I. other than

poison, HAVING A DENSITY OF 20 LBS OR GREATER PER

**CUBIC FOOT** 

### **SECTION 15: REGULATORY INFORMATION**

**EPA Registration No.** 264-690

**US Federal Regulations** 

**TSCA list** 

Bromoxynil octanoate 1689-99-2 Solvent Naphtha (petroleum), heavy 64742-94-5

aromatic

Naphthalene 91-20-3 Ethoxylated-propoxylated alkylphenol 68891-11-2 2-Methylpropan-1-ol 78-83-1

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

Not applicable.



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### SARA Title III - Section 302 - Notification and Information

None.

SARA Title III - Section 313 - Toxic Chemical Release Reporting

Bromoxynil octanoate 1689-99-2

Naphthalene 91-20-3 0.1%

Toluene 108-88-3

Bromoxynil 1689-84-5 25000lbs

### **US States Regulatory Reporting**

CA Prop65

Toluene

WARNING: This product contains a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Naphthalene 91-20-3

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Bromoxynil octanoate 1689-99-2 Developmental toxin.
Toluene 108-88-3 Developmental toxin.
Bromoxynil 1689-84-5 Developmental toxin.

### **US State Right-To-Know Ingredients**

Bromoxynil octanoate Solvent Naphtha (petroleum), heavy	1689-99-2 64742-94-5	NJ CT, NJ, RI
aromatic Naphthalene	91-20-3	CA, CT, IL, MN, NJ, RI
2-Methylpropan-1-ol	78-83-1	CA. CT. IL. MN. NJ. RI

Bromoxynil 1689-84-5 CA, NJ

#### **EPA/FIFRA Information:**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:

108-88-3

CA, CT, IL, MI, MN, NJ, RI

Signal word: Caution!

**Hazard statements:** Harmful if swallowed.

Moderate eye irritation.

Avoid contact with skin, eyes and clothing. May cause sensitization by skin contact.

### **SECTION 16: OTHER INFORMATION**

### **Abbreviations and acronyms**

49CFR Code of Federal Regulations, Title 49 ACGIH US. ACGIH Threshold Limit Values

ATE Acute toxicity estimate



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CAS-Nr. Chemical Abstracts Service number

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act

EINECS European inventory of existing commercial substances

ELINCS European list of notified chemical substances IARC International Agency for Research on Cancer IATA International Air Transport Association IMDG International Maritime Dangerous Goods

N.O.S. Not otherwise specified

NTP US. National Toxicology Program (NTP) Report on Carcinogens OECD Organization for Economic Co-operation and Development

TDG Transportation of Dangerous Goods

TWA Time weighted average

UN United Nations

WHO World health organisation

NFPA 704 (National Fire Protection Association):

Health - 2 Flammability - 2 Instability - 1 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2 Flammability - 2 Physical Hazard - 1 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard

(29CFR1910.1200)

**Revision Date:** 09/18/2019

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