Version #: 01
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture Catalyst-3

Registration number -

Synonyms None.

Product code 5-06-0306-0

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

Identified uses

Uses advised against

1.3. Details of the supplier of the safety data sheet

Company name MITSUBISHI GAS CHEMICAL COMPANY, INC.

Address 5-2, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8324, Japan

Department in Charge Planning & Development Division, Basic Chemicals Business Sector

Telephone Number 2E

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Global Incident Response Hotline +81-3-6890-8677(Verisk 3E)

Access code 335392

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards		
Self-heating substances and mixtures	Category 1	H251 - Self-heating; may catch fire.
Health hazards		
Serious eye damage/eye irritation	Category 2	H319 - Causes serious eye irritation.
Respiratory sensitization	Category 1	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization	Category 1	H317 - May cause an allergic skin reaction.
Carcinogenicity	Category 1A	H350 - May cause cancer.
Specific target organ toxicity - single exposure	Category 1 (kidney, respiratory organs)	H370 - Causes damage to organs (kidney, respiratory organs).
Specific target organ toxicity - single exposure	Category 3 respiratory tract irritation	H335 - May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Category 1 (respiratory organs)	H372 - Causes damage to organs (respiratory organs) through prolonged or repeated exposure.
Specific target organ toxicity - repeated exposure	Category 2 (respiratory organs, kidney)	H373 - May cause damage to organs (respiratory organs, kidney) through prolonged or repeated exposure.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Bentonite, nickel, nickel monoxide

Hazard pictograms

Signal word Danger

Hazard statements

H251	Self-heating; may catch fire.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H370	Causes damage to organs (kidney, respiratory organs).
H372	Causes damage to organs (respiratory organs) through prolonged or repeated exposure.
H373	May cause damage to organs (respiratory organs, kidney) through prolonged or repeated exposure.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P235	Keep cool.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P284	Wear respiratory protection.

Response

P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P342 + P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P407	Maintain air gap between stacks or pallets.
P410	Protect from sunlight.
P420	Store separately.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental label 2E above special instruction is this SDS.

2.3. Other hazards This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The mixture does not contain any substances included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties at a concentration equal to or greater than 0.1% by weight.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
nickel	-	7440-02-0 231-111-4	-	028-002-00-7	
Classification: Pyr. Sol. 1;H250, Skin Sens. 1;H317, Carc. 2;H351, STOT RE 1;H372, Aquatic Chronic 3;H412					7,S

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
nickel monoxide	-	1313-99-1 215-215-7	-	028-003-00-2	
Classification: Skin Sens. 1;H317, Carc. 1A;H350i, STOT RE 1;H372, Aquatic Chronic 4;H413					
Bentonite	-	1302-78-9 215-108-5	-	-	
Classification: -					

List of abbreviations and symbols that may be used above

ATE: Acute toxicity estimate.
M: M-factor
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. #: This substance has been assigned Union workplace exposure limit(s).

Composition comments Bentonite contains naturally occurring crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantities less than 6%. The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information If you feel unwell, seek medical advice (show the label where possible).

4.1. Description of first aid measures

Inhalation Call a poison center or doctor/physician if you feel unwell. Get medical advices/attention.

Skin contact Wash off immediately with soap and plenty of water. Get medical advices/attention.

Eye contact Rinse cautiously with water for several minutes. If eye irritation persists: Get medical advice/attention. Get medical advices/attention.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Exposure may cause temporary irritation, redness, or discomfort.

4.3. Indication of any immediate medical attention and special treatment needed Not available.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Water Fog. Dry chemical powder.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters When extinguishing fire, wear appropriate air respirator and chemical protective clothing.

Special fire fighting procedures Not available.

Specific methods In case of fire in the surroundings, immediately move the container to a safe place. If it is impossible to move, sprinkle water on the container and surroundings to cool it.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

For emergency responders Keep unnecessary personnel away. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Do not drain the leakage into rivers.

6.3. Methods and material for containment and cleaning up Stop leak if you can do so without risk. Collect and collect spills as much as possible.

6.4. Reference to other sections	For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep cool. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Store away from other materials. Maintain air gap between stacks/pallets.
7.3. Specific end use(s)	Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.

8.2. Exposure controls

Appropriate engineering controls	Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

General information	Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Protective glasses (goggles, protective face)
Skin protection	
- Hand protection	For prolonged or repeated skin contact use suitable protective gloves. Suitable gloves can be recommended by the glove supplier.
- Other	Wear suitable protective clothing and gloves.
Respiratory protection	Wear suitable respiratory protection.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Do not eat, drink or smoke when using the product. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Wash hands and face thoroughly after handling.
Environmental exposure controls	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid.
Form	Solid. stick
Color	Black.
Odor	Odorless.
Melting point/freezing point	3551 °F (1955 °C) Kieselguhr, calcined / 2651 °F (1455 °C) estimated 2930 °F (1610 °C) Nickel oxide 2647,4 °F (1453 °C) nickel
Boiling point or initial boiling point and boiling range	4946 °F (2730 °C) nickel 4537,4 °F (2503 °C) Kieselguhr, calcined > 3632 °F (> 2000 °C) Nickel oxide
Flammability	Not available.

Flash point	Not available.
Auto-ignition temperature	None known
Decomposition temperature	Not available.
pH	Not available.
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	Not soluble in water.
Solubility (other)	Partially soluble in acidic solution.
Vapor pressure	Not available.
Density and/or relative density	Not available.
Vapor density	Not available.
Particle characteristics	Not available.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.

9.2.2. Other safety characteristics

Bulk density	0,7 kg/L

SECTION 10: Stability and reactivity

10.1. Reactivity	Keep away from combustible material.
10.2. Chemical stability	If it is opened in air, it may oxidize and generate heat.
10.3. Possibility of hazardous reactions	Nothing especially.
10.4. Conditions to avoid	Moisture.
10.5. Incompatible materials	Nothing especially.
10.6. Hazardous decomposition products	Nothing especially

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Symptoms	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Rash. Edema.

11.1. Information on toxicological effects

Acute toxicity	Due to partial or complete lack of data the classification is not possible.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Causes serious eye irritation.
Respiratory sensitization	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

nickel (CAS 7440-02-0)	2B Possibly carcinogenic to humans.
nickel monoxide (CAS 1313-99-1)	1 Carcinogenic to humans.

Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Causes damage to organs (kidney, respiratory organs). May cause respiratory irritation.

Specific target organ toxicity - repeated exposure	Causes damage to organs (respiratory organs) through prolonged or repeated exposure. May cause damage to organs (respiratory organs, kidney) through prolonged or repeated exposure.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.

11.2. Information on other hazards

Endocrine disrupting properties	This mixture does not contain any substances having endocrine disrupting properties with respect to human health as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity Due to partial or complete lack of data the classification for hazardous to the aquatic environment, acute hazard, is not possible.

Components		Species	Test Results
Bentonite (CAS 1302-78-9)			
Aquatic			
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	19000 mg/l, 96 hours
nickel (CAS 7440-02-0)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	1 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,09 mg/l, 4 days

12.2. Persistence and degradability	No data is available on the degradability of any ingredients in the mixture.
12.3. Bioaccumulative potential	No data available.
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.
12.6. Endocrine disrupting properties	This mixture does not contain any substances having endocrine disrupting properties with respect to the environment as assessed in accordance with the criteria set out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605, at a concentration equal to or greater than 0.1% by weight.
12.7. Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Dispose of contents / container in accordance with legal regulations such as Waste Disposal Law. When disposing, follow the related laws and regulations such as the Disposal Law and the standards of local governments.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Special precautions	Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR

14.1. UN number	UN2881
14.2. UN proper shipping name	METAL CATALYST, DRY
14.3. Transport hazard class(es)	
Class	4.2
Subsidiary risk	-

Label(s)	4.2
Hazard No. (ADR)	40
Tunnel restriction code	D/E
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number	UN2881
14.2. UN proper shipping name	METAL CATALYST, DRY
14.3. Transport hazard class(es)	
Class	4.2
Subsidiary risk	-
Label(s)	4.2
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number	UN2881
14.2. UN proper shipping name	METAL CATALYST, DRY
14.3. Transport hazard class(es)	
Class	4.2
Subsidiary risk	-
Label(s)	4.2
14.4. Packing group	II
14.5. Environmental hazards	No.
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number	UN2881
14.2. UN proper shipping name	Metal catalyst, dry
14.3. Transport hazard class(es)	
Class	4.2
Subsidiary risk	-
14.4. Packing group	II
14.5. Environmental hazards	No
ERG Code	4L
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Forbidden
Cargo aircraft only	Allowed with restrictions.

IMDG

14.1. UN number	UN2881
14.2. UN proper shipping name	METAL CATALYST, DRY
14.3. Transport hazard class(es)	
Class	4.2
Subsidiary risk	-
14.4. Packing group	II
14.5. Environmental hazards	
Marine pollutant	No
EmS	F-G, S-M
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

14.7. Maritime transport in bulk according to IMO instruments	Not applicable.

ADN; ADR; IATA; IMDG; RID

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

nickel (CAS 7440-02-0)
nickel monoxide (CAS 1313-99-1)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorizations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

nickel (CAS 7440-02-0)
nickel monoxide (CAS 1313-99-1)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended

nickel monoxide (CAS 1313-99-1)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

nickel monoxide (CAS 1313-99-1)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC, as amended.

Non-exhaustive list of substances toxic for reproduction

Not listed.

SZW list of carcinogenic substances

nickel monoxide (CAS 1313-99-1)

SZW list of mutagenic substances

Not listed.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS: Chemical Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG: International Maritime Dangerous Goods.
MARPOL: International Convention for the Prevention of Pollution from Ships.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short term exposure limit.
TWA: Time Weighted Average.
vPvB: Very persistent and very bioaccumulative.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

H250 Catches fire spontaneously if exposed to air.
H317 May cause an allergic skin reaction.
H350i May cause cancer by inhalation.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.

Revision information

None.

Training information

Follow training instructions when handling this material.

Disclaimer

MITSUBISHI GAS CHEMICAL COMPANY, INC. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.