

Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: January 07, 2019

Revision: January 07, 2019

1 Identification

- **Product identifier**
- **Trade name:** Nickel Metal Hydride Battery
- **Other means of identification:** NI-MH Battery (AA)
- **Recommended use and restriction on use**
- **Recommended use:** Battery
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
Sterno Products
1880 Compton Ave. #101
Corona, CA 92881
Phone: (951) 682-9600
- **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
 - Acute Tox. 4 H302 Harmful if swallowed.
 - Acute Tox. 4 H332 Harmful if inhaled.
 - Skin Corr. 1B H314 Causes severe skin burns and eye damage.
 - Eye Dam. 1 H318 Causes serious eye damage.
 - Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 - Skin Sens. 1 H317 May cause an allergic skin reaction.
 - Muta. 2 H341 Suspected of causing genetic defects.
 - Carc. 1A H350 May cause cancer.
 - Repr. 1A H360 May damage fertility or the unborn child.
 - STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.
- **Additional information:**

Note: Leaking cells pose health hazards: see Sections 4 and 11. Intentional abuse of cells or batteries increases the risk of harm or damage to the product, to the user, and to surrounding materials and personnel. Do not attempt to open sealed cells or batteries. Do not intentionally short-circuit cells or batteries. Do not expose these products to temperatures exceeding the maximum manufacturers rating. Do not dispose of cells/batteries in landfills. Please follow all manufacturer guidelines in the use, storage, and disposal of these products. Consult manufacturer in cases of questions involving specific product usage.

Exposure to product contents is highly unlikely during normal usage.
- **Label elements**
- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**

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GHS05 GHS07 GHS08

· **Signal word:** Danger

· **Hazard statements:**

- H302+H332 Harmful if swallowed or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H341 Suspected of causing genetic defects.
- H350 May cause cancer.
- H360 May damage fertility or the unborn child.
- H372 Causes damage to organs through prolonged or repeated exposure.

· **Precautionary statements:**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe vapors.
- 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 must not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- 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.
- P310 Immediately call a poison center/doctor.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P314 Get medical advice/attention if you feel unwell.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization:** Mixtures

· **Components:**

12054-48-7	nickel dihydroxide	20-40%
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	<ul style="list-style-type: none"> ⚠ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350; Repr. 1B, H360; STOT RE 1, H372 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Skin Sens. 1, H317 	
7440-02-0	<ul style="list-style-type: none"> Nickel ⚠ Skin Sens. 1, H317 	<20%
7439-89-6	Iron	<20%
9002-86-2	Polyvinyl chloride	<20%
1307-96-6	<ul style="list-style-type: none"> cobalt oxide ⚠ Acute Tox. 3, H301; Acute Tox. 2, H330 ⚠ Resp. Sens. 1B, H334 ⚠ Skin Sens. 1, H317 	<10%
1310-58-3	<ul style="list-style-type: none"> Potassium hydroxide ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314 ⚠ Acute Tox. 4, H302 	<5%

Additional information:

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
 For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

Description of first aid measures

General information:

Information is only applicable to product contents, and not to product as normally supplied. This information is only applicable to damaged, leaking, or spilled product as contact with contents is possible under these conditions.

After inhalation:

Supply fresh air; consult doctor in case of complaints.
 Provide oxygen treatment if affected person has difficulty breathing.
 In case of irregular breathing or respiratory arrest provide artificial respiration.

After skin contact:

Immediately remove any clothing soiled by the product.
 Immediately wash with water and soap and rinse thoroughly.
 If skin irritation continues, consult a doctor.
 Seek immediate help for blistering or open wounds.

After eye contact:

Remove contact lenses if worn, if possible.
 Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing:

Rinse out mouth and then drink plenty of water.
 Do not induce vomiting; immediately call for medical help.

Most important symptoms and effects, both acute and delayed:

- Coughing
- Allergic reactions
- Gastric or intestinal disorders
- Vomiting.
- Diarrhea.
- Caustic effect on skin and mucous membranes.

Danger:

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- Causes serious eye damage.
- Harmful if swallowed or if inhaled.
- May cause cancer.
- May damage fertility or the unborn child.
- Suspected of causing genetic defects.
- Causes damage to organs through prolonged or repeated exposure.
- **Indication of any immediate medical attention and special treatment needed:** Treat symptomatically.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
 - Water in flooding quantities.
 - Fire-extinguishing powder
 - Sand
- **For safety reasons unsuitable extinguishing agents:** None.
- **Special hazards arising from the substance or mixture**
 - During heating or in case of fire poisonous gases are produced.
 - In contact with water releases flammable gas.
- **Advice for firefighters**
- **Protective equipment:**
 - Wear self-contained respiratory protective device.
 - Wear fully protective suit.
- **Additional information:** Cool endangered receptacles with water in flooding quantities.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 - If containers are leaking, use respiratory protective device against the effects of fumes/dust/aerosol.
 - Ensure adequate ventilation.
 - Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions** Avoid release to the environment.
- **Methods and material for containment and cleaning up**
 - Absorb liquid components with liquid-binding material.
 - Pick up mechanically.
 - Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
 - See Section 7 for information on safe handling.
 - See Section 8 for information on personal protection equipment.
 - See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
 - Keep away from open flames or temperatures exceeding manufacturer ratings. DO NOT ATTEMPT TO OPEN SEALED CELLS OR BATTERIES – BATTERY CONTENTS MAY PRESENT SERIOUS SAFETY

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AND HEALTH HAZARDS. SHORT-CIRCUITING THE TERMINALS OF A DEVICE MAY RESULT IN DAMAGE TO DEVICE AND ANY NEARBY OBJECTS OR PERSONNEL.

· **Information about protection against explosions and fires:**

- Protect from heat.
- Protect against electrostatic charges.
- Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**

· **Requirements to be met by storerooms and receptacles:**

- Store in a dry, well-ventilated place.
- Do not use or store near open flame.
- Avoid extreme temperatures; battery may rupture and release contents.
- Do not store and transport with incompatible materials.
- Store individual batteries or cells only in approved packaging in order to avoid inadvertent short circuits, as this may result in damage to device, nearby objects, personnel, or all of the above.

· **Information about storage in one common storage facility:**

- Store away from foodstuffs.
- Store away from water.

· **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

12054-48-7 nickel dihydroxide

PEL (USA)	Long-term value: 1 mg/m ³ as Ni
REL (USA)	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
EL (Canada)	Long-term value: 0.05 mg/m ³ as Ni; ACGIH A1, IARC 1
EV (Canada)	Long-term value: 0.1 mg/m ³ Inhalable fraction, as Ni

7440-02-0 Nickel

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 0.015 mg/m ³ as Ni; See Pocket Guide App. A
TLV (USA)	Long-term value: 1.5* mg/m ³ elemental, *inhalable fraction
EL (Canada)	Long-term value: 0.05 mg/m ³ ACGIH A1, IARC 2B
EV (Canada)	Long-term value: 1 mg/m ³ Inhalable fraction
LMPE (Mexico)	Long-term value: 1.5* mg/m ³ *elemental:A5, fracción inhalable

7439-89-6 Iron

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EV (Canada)	Long-term value: 1* 5** mg/m ³ as iron;*salts, water-soluble;**welding fume
LMPE (Mexico)	Long-term value: 1 mg/m ³

9002-86-2 Polyvinyl chloride

TLV (USA)	Long-term value: 1* mg/m ³ *as respirable fraction
EL (Canada)	Long-term value: 1 mg/m ³
LMPE (Mexico)	Long-term value: 1* mg/m ³ A4, *fracción respirable

1307-96-6 cobalt oxide

PEL (USA)	Long-term value: 0.1* mg/m ³ as Co; *for metal dust and fume
REL (USA)	Long-term value: 0.05 mg/m ³ as Co; metal dust & fume
TLV (USA)	Long-term value: (0.02) NIC-0.02* mg/m ³ as Co, *inhalable; NIC-DSEN; RSEN; BEI
EL (Canada)	Long-term value: 0.02 mg/m ³ as Co; IARC 2B
LMPE (Mexico)	Long-term value: 0.02 mg/m ³ A3, IBE; como Co

1310-58-3 Potassium hydroxide

REL (USA)	Ceiling limit value: 2 mg/m ³
TLV (USA)	Ceiling limit value: 2 mg/m ³
EL (Canada)	Ceiling limit value: 2 mg/m ³
EV (Canada)	Ceiling limit value: 2 mg/m ³
LMPE (Mexico)	Ceiling limit value: 2 mg/m ³

· Ingredients with biological limit values:

1307-96-6 cobalt oxide

BEI (USA)	15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background)
	1 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background, semi-quantitative)

· Exposure controls

· General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes and skin.
- Avoid breathing vapors.

· Engineering controls: No relevant information available.

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- **Breathing equipment:**
Not required under normal conditions of use.
For spills, respiratory protection may be advisable.
- **Protection of hands:**
Not required under normal conditions of use.
Wear protective gloves to handle contents of damaged or leaking units.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
- **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
Natural rubber, NR
Neoprene gloves
Fluorocarbon rubber (Viton)
- **Eye protection:**
Not required for normal handling. Wear protective eyewear while handling damaged or leaking product.
- **Body protection:**
Protective work clothing
Protection may be required for spills.
- **Limitation and supervision of exposure into the environment**
Avoid release to the environment.
- **Risk management measures** No relevant information available.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

- **Appearance:**
 - **Form:** Solid
 - **Color:** According to product specification
- **Odor:** Odorless
- **Odor threshold:** Not determined.
- **pH-value:** Not applicable.
- **Melting point/Melting range:** Not determined.
- **Boiling point/Boiling range:** Not determined.
- **Flash point:** Not applicable.
- **Flammability (solid, gaseous):** Not determined.
- **Auto-ignition temperature:** Not determined.
- **Decomposition temperature:** Not determined.
- **Danger of explosion:** Not determined.
- **Explosion limits**
 - **Lower:** Not determined.
 - **Upper:** Not determined.
- **Oxidizing properties:** Non-oxidizing.
- **Vapor pressure:** Not applicable.

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- **Density:**
 - Relative density:** Not determined.
 - Vapor density:** Not applicable.
 - Evaporation rate:** Not applicable.
- **Solubility in / Miscibility with Water:** Insoluble.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity**
 - Dynamic:** Not applicable.
 - Kinematic:** Not applicable.
- **Other information** No relevant information available.

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
To avoid thermal decomposition, do not overheat.
- **Possibility of hazardous reactions**
Hazardous reactions generally occur with contents of leaking batteries only.
Toxic fumes may be released if heated above the decomposition point.
Reacts with strong acids and oxidizing agents.
Reacts with strong alkali.
Contact with water releases flammable gases.
- **Conditions to avoid**
Excessive heat.
Avoid acids.
Store away from oxidizing agents.
Moisture.
- **Incompatible materials**
Oxidizers, strong bases, strong acids
Water
- **Hazardous decomposition products**
Carbon monoxide and carbon dioxide
Toxic metal oxide smoke
Hydrogen

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
None from normal handling. Symptoms only seen in exposure to leaking articles.
Harmful if swallowed or if inhaled.

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· **LD/LC50 values that are relevant for classification:**

1310-58-3 Potassium hydroxide

Oral	LD50	273 mg/kg (rat)
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· **Primary irritant effect:**

· **On the skin:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
Caustic effect on skin and mucous membranes.

· **On the eye:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
Strong irritant with the danger of severe eye injury.

· **Sensitization:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
May cause sensitisation by inhalation and skin contact.

· **IARC (International Agency for Research on Cancer):**

7440-02-0	Nickel	2B
1307-96-6	cobalt oxide	2B
12054-48-7	nickel dihydroxide	1

· **NTP (National Toxicology Program):**

12054-48-7	nickel dihydroxide	K
7440-02-0	Nickel	R

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**

Information references exposures to battery contents, and not exposures to whole units. Exposures to whole units are unlikely to produce health hazards.

· **Germ cell mutagenicity:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
Suspected of causing genetic defects.

· **Carcinogenicity:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
May cause cancer.

· **Reproductive toxicity:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
May damage fertility or the unborn child.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:**

None from normal handling. Symptoms only seen in exposure to leaking articles.
Causes damage to organs through prolonged or repeated exposure.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** The product contains materials that are harmful to the environment.

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

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- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Avoid transfer into the environment.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Contact waste processors for recycling information.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR/RID/ADN, IATA · IMDG | <p>Not regulated.
UN3496</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT
 · ADR/RID/ADN · IMDG

 · IATA | <p>Not regulated when prepared for transport so as to prevent a dangerous evolution of heat, short circuit and damage to terminals.</p> <p>Not subject to ADN, ADR or RID.
BATTERIES, NICKEL-METAL HYDRIDE
Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in equipment are not subject to the provisions of the IMDG Code. All other nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provisions of the IMDG Code provided that they are loaded in a cargo transport unit in a total quantity of less than 100 kg gross mass. When loaded in a cargo transport unit in a total quantity of 100 kg gross mass or more, they are not subject to other provisions of the IMDG Code except those of 5.4.1, 5.4.3 and columns 16a and 16b of the Dangerous Goods List in chapter 3.2.</p> <p>Not regulated when prepared for transport so as to prevent short circuit and unintentional activation.</p> |

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- | | |
|--|-----------------|
| · Transport hazard class(es) | |
| · DOT, ADR/RID/ADN, IMDG, IATA | |
| · Class | Not regulated. |
| · Packing group | |
| · DOT, ADR/RID/ADN, IMDG, IATA | Not regulated. |
| · Environmental hazards | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · EMS Number: | F-A,S-I |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· Section 302 (extremely hazardous substances):

None of the ingredients are listed.

· Section 355 (extremely hazardous substances):

None of the ingredients are listed.

· Section 313 (Specific toxic chemical listings):

12054-48-7	nickel dihydroxide
7440-02-0	Nickel
1307-96-6	cobalt oxide

· TSCA (Toxic Substances Control Act)

All ingredients are listed or exempt.

· Proposition 65 (California)

· Chemicals known to cause cancer:

12054-48-7	nickel dihydroxide
7440-02-0	Nickel
1307-96-6	cobalt oxide

· Chemicals known to cause developmental toxicity for females:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity for males:

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

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None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

12054-48-7	nickel dihydroxide	1
7440-02-0	Nickel	2B
1307-96-6	cobalt oxide	2B

· **Canadian Domestic Substances List (DSL) (Substances not listed.):**

All ingredients are listed or exempt.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bio-accumulable, Toxic
- vPvB: very Persistent and very Bioaccumulative
- OSHA: Occupational Safety & Health Administration
- Met. Corr. 1: Corrosive to metals – Category 1
- Acute Tox. 3: Acute toxicity – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Acute Tox. 2: Acute toxicity – Category 2
- Skin Corr. 1A: Skin corrosion/irritation – Category 1A
- Skin Corr. 1B: Skin corrosion/irritation – Category 1B
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Resp. Sens. 1: Respiratory sensitisation – Category 1
- Resp. Sens. 1B: Respiratory sensitisation – Category 1B
- Skin Sens. 1: Skin sensitisation – Category 1
- Muta. 2: Germ cell mutagenicity – Category 2
- Carc. 1A: Carcinogenicity – Category 1A
- Repr. 1A: Reproductive toxicity – Category 1A
- Repr. 1B: Reproductive toxicity – Category 1B
- STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

· **Sources**

- Website, European Chemicals Agency (echa.europa.eu)
- Website, US EPA Substance Registry Services (ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do)
- Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
- Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
- Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
- Safety Data Sheets, Individual Manufacturers

SDS Prepared by:
ChemTel Inc.

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