## 1. Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Product name:** Super Alloy
**Product shape:** strip, sheet, plate, foil, strip, processed product (profile rolled steel, pipe, bar, channel)
**Product form:** Mixture (Alloy)

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

**Relevant identified uses:** Solid Product, Various Forms and Uses.
**Uses advised against:** Not applicable.

### 1.3 Details of the supplier of the safety data sheet

**Company name:** NIPPON KINZOKU CO., LTD.
**Address:** 5-30-7 Shiba, Minato-ku, Tokyo 108-0014
**Responsible Dept.:** Business Control Department
**Tel:** +81-3-5765-8106 (only available during office hours)
**Fax:** +81-3-5765-8117
**Web Page:** https://www.nipponkinzoku.co.jp/en/

### 1.4 Emergency Telephone Number

**Contact:** Same as the above

## 2. Hazards identification

The product in their solid state presents no inhalation, ingestion or contact health hazard. However, inhaling dusts and/or fumes which may be generated during certain manufacturing procedures such as burning, melting, welding, sawing, brazing, grinding and machining may irritate the mucous membranes of the respiratory organs, eyes, etc. Dusts may have combustion/explosion.
Regarding the elemental components contained in steel materials, there is the following hazard information.

### 2.1 Classification of the substance or mixture (GHS classification)

**<HEALTH HAZARDS>**

| Hazard class | Classification | Hazard statement |
|---|---|---|
| Acute toxicity (Oral) | Category 4 | H302 : Harmful if swallowed |
| Acute toxicity (Inhalation: Dusts and mists) | Category 1 | H330 : Fatal if inhaled |
| Skin corrosion/irritation | Category 2 | H315 : Causes skin irritation. |
| | Category 3 | H316 : Causes mild skin irritation. |
| Serious eye damage/eye irritation | Category 2 | H319 : Causes serious eye irritation. |
| | Category 2B | H320 : Causes eye irritation. |
| Respiratory sensitization | Category 1, 1A | H334 : May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| Skin sensitization | Category 1, 1A | H317 : May cause an allergic skin reaction. |
| Carcinogenicity | Category 2 | H351 : Suspected of causing cancer |
| Reproductive toxicity | Category 1B | H360 : May damage fertility or the unborn child. |
| Specific target organ toxicity - Single exposure | Category 1 | H370 : Causes damage to organs (respiratory system, kidney, respiratory organs, digestive system) |
| | Category 2 | H371 : May cause damage to organs (respiratory organs) |
| | Category 3 | H335 : May cause respiratory irritation (respiratory tract irritation) |
| Specific target organ toxicity - Repeated exposure | Category 1 | H372 : Causes damage to organs through prolonged or repeated exposure (respiratory system, respiratory organs, heart, thyroid, blood system, reproductive argans(male), nervous system, lung) |

**<ENVIRONMENTAL HAZARDS>**

| | | |
|---|---|---|
| Hazardous to the aquatic environment Short term (Acute) | Category 1 | H400 : Very toxic to aquatic life |
| Hazardous to the aquatic environment Long term (Chronic) | Category 1 | H410 : Very toxic to aquatic life with long lasting effects |
| Hazardous to the aquatic environment (Long-term) | Category 4 | H413 : May cause long lasting harmful effects to aquatic life. |

**2.2 Label elements (GHS Labeling)**

**<Pictograms>**

**<Signal word>**

Danger, warning

**<Precautionary statements>**

**(Prevention precautionary statement)**

- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264: Wash hands 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.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P284: [In case of inadequate ventilation] wear respiratory protection.

**(Response precautionary statement)**

- P301+P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
- P302+P352: IF ON SKIN: Wash with plenty of soap and water.
- 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.
- P308+P313: IF exposed or concerned: Get medical advice/attention.
- P310: Immediately call a POISON CENTER/doctor.
- P312: Call a POISON CENTER/doctor if you feel unwell.
- P314: Get medical advice/attention if you feel unwell.
- P330: Rinse mouth.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- 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 or doctor/physician.
- P362+P364: Take off contaminated clothing and wash it before reuse.
- P391: Collect spillage.

**(Storage precautionary statement)**

- P403+P233: Store in a well-ventilated place. Keep container tightly closed.
- P405: Store locked up.

**(Disposal precautionary statement)**

- P501: Dispose of contents/container in accordance with local/regional/national/international regulation to be specified.

## 3. Composition/ information on ingredients

**3.1 Chemical identity** : Mixture (alloy based on Nickel, Chromium and Iron chemically stable solid substance)

**3.2 Composition / information Ingredients**

| Chemical Name | | Weight % | CAS Number | EC Number |
|---|---|---|---|---|
| Silicon | [Si] | 0 - 3 | 7440-21-3 | 231-130-8 |
| Manganese | [Mn] | 0 - 3 | 7439-96-5 | 231-105-1 |
| Nickel | [Ni] | 20 - 85 | 7440-02-0 | 231-111-4 |
| Chromium | [Cr] | 0 - 35 | 7440-47-3 | 231-157-5 |
| Molybdenum | [Mo] | 0 - 10 | 7439-98-7 | 231-107-2 |
| Cobalt | [Co] | 0 - 3 | 7440-48-4 | 231-158-0 |
| Copper | [Cu] | 0 - 6 | 7440-50-8 | 231-159-6 |
| Aluminum | [Al] | 0 - 3 | 7429-90-5 | 231-072-3 |
| Titanium | [Ti] | 0 - 3 | 7440-32-6 | 231-142-3 |
| Niobium | [Nb] | 0 - 6 | 7440-03-1 | 231-113-5 |
| Iron | [Fe] | bal | 7439-89-6 | 231-096-4 |

Note 1) The component values differ depending on the steel grade standard within the range shown in the above table.
Note 2) In addition to the main components in the above table, trace elements such as carbon [C], phosphorus [P], sulfur [S],and nitrogen [N] are included.

## 4. First-aid measures

In case of inhalation of, ingestion of, or skin contact with the dust or fumes generated during processing of steel materials, immediately give first aid described below, and then seek medical attention or treatment if necessary.

- **Inhalation:** Move victim to fresh air and keep at rest in position comfortable for breathing.
- **Skin contact:** Wash skin immediately with plenty of water and soap.
- **Eye contact:** Rinse carefully with water for several minutes. In case of using contact lenses, remove them if easy to do so. Continue rinsing.
- **Ingestion:** Rinse mouth out thoroughly with water.
- **Others:** In case of skin wound such as a cut from edge or chips of steel material, keep wound clean. If skin becomes burned by arcs, etc., cool with water.

## 5. Fire-fighting measures

The product is non-combustible and non-explosive under normal conditions. Fire extinguishers/water may be used if in a situation of fire. However the fines of the products may be combustible or explosive depending on circumstances.

- **Suitable extinguishing media:** Use extinguishing media appropriate for surrounding fire.
- **Unsuitable extinguishing media:** No applicable information for this item.

## 6. Accidental release measures

No available data to exposure prevention and protective measures for steel in solid state. However, with operations such as welding, sawing, brazing, grinding, machining etc. that might case dust/fume, follow the procedures shown below.

**6.1 Personal precautions, protective equipment, and emergency procedures**

Provide adequate ventilation. Wear appropriate protective equipment to prevent inhalation of or eye contact with dust or fumes.

**6.2 Environmental precautions**

Not applicable to steel in solid state.

**6.3 Methods and materials for containment and cleaning up**

Contaminated packages must be disposed of as waste according to section 13.

## 7. Handling and Storage

**7.1 Precautions for safe handling**

Wear appropriate protective equipment in case of generating dust or fumes during welding, weld cutting or grinding. Moreover, be sure to provide local or general ventilation system.

For heavy weights, call for precautions in handling, against toppling, rolling and package-collapsing. Cut-ends and cutting chips with

burr may be injurious. Fumes from welding and fine particles may cause fire injury. When cutting bundling and packaging hoops (bands), be careful about bouncing hoops and hoop-tips. Particularly with coils, be careful about their leading ends which, when unbundled, might spring up ward.

**7.2 Conditions for safe storage, including any compatibilities**

Avoid contact with water leakage, acid, alkali or substances containing them. Avoid environment with high temperature and high humidity. Pack them with sheets or covers to prevent products from getting rusty/rain water infiltrations, if needed.

## 8. Exposure Controls/ Personal Protection

No available data to exposure prevention and protective measures for steel in solid state. However, with operations such as welding, sawing, brazing, grinding, machining etc. that might case dust/fume, follow the exposure control/personal protection procedures shown below.

**8.1 Concentration limit**

| | Mn | Ni | Cr | Mo | Co | Cu | Al |
|---|---|---|---|---|---|---|---|
| Year Classified: | 2018 | 2009 | 2019 | 2015 | 2020 | 2013 | 2015 |
| ACGIH[*1]<br>TLVs・TWA [mg/m$^3$] | 0.1(I)[*2]<br>0.02(R)[*2] | 1.5(I)[*2] | 0.5(I)[*2] | 10(I)[*2]<br>3(R)[*2] | 0.02(I)[*2] | 1[*3]<br>0.2[*4] | 1(R)[*2] |

Note) Search results of NITE HP/CHRIP (Chemical Risk Information Platform)

*1. American Conference of Governmental Industrial Hygienists (by https://anzeninfo.mhlw.go.jp/anzen_pg/GHS_MSD_FND.aspx)

*2. (I); Inhalable fraction (R); Respirable fraction

*3. Dust and mists, as Cu

*4. Fume

**8.2 Exposure controls**

If dust/fume occurs, use partial/whole ventilation.

**8.3 Personal Protection**

If dust/fume occurs, use suitable respiratory protective equipment/protective gloves/protective wear/safety shoes.

## 9. Physical and chemical properties

| | |
|---|---|
| appearance : Silver-gray metallic solid form | upper/lower flammability or explosive limits : Not Applicable |
| odor : Odorless | |
| odor threshold : Not Applicable | vapor Pressure : Negligible |
| pH : Not applicable | vapor density : Not Applicable |
| melting Point : 1250℃ and over | solubility (water) : Insoluble |
| boiling range : Unknown | n-octanol/water partition coefficient : Not Applicable |
| flash point : Non-flammable | auto-ignition temperature : Not Applicable |
| Density : 7 – 9 (g/cm3 at 20℃) | decomposition temperature : Not Applicable |

## 10. Stability and reactivity

**10.1 Reactivity/Chemical stability:** Stable and non-reactive under general condition.

**10.2 Possibility of hazardous reactions:** Contact with chemicals such as water and acids may cause oxygen deficiency and harmful gas generation.

**10.3 Conditions to be avoided:** Keep away from environments of high temperature and humidity.

**10.4 Incompatible materials:** Oxidizing substance

**10.5 Hazardous decomposition products:** Inter-metallic compounds in fume at welding/fusing may exist.

## 11. Toxicological information

| Hazard class | [Si] | [Mn] | [Ni] | [Cr] | [Mo] | [Co] | [Cu] | [Al] |
|---|---|---|---|---|---|---|---|---|
| Year Classified: | 2009 | 2006 | 2009 | 2019 | 2015 | 2020 | 2013 | 2015 |
| Acute toxicity (Oral) | – | – | – | – | – | Category 4 | – | – |
| Acute toxicity (Inhalation: Dusts and mists) | | | | | | Category 1 | | |
| Skin corrosion/irritation | – | Category 3 | – | – | Category 2 | – | – | – |
| Serious eye damage/eye irritation | Category 2B | Category 2B | – | Category 2 | Category 2 | Category 2B | – | – |
| Respiratory sensitization | – | – | Category 1 | Category 1A | – | Category 1A | – | – |
| Skin sensitization | – | – | Category 1 | Category 1A | – | Category 1A | Category 1A | – |
| Carcinogenicity | – | – | Category 2 | – | – | Category 2 | – | – |
| Reproductive toxicity | – | Category 1B | – | – | – | Category 1B | – | – |
| Specific target organ toxicity - Single exposure | – | Category 1 (r.s.) | Category 1 (r.s., kid) | Category 3 (r.t.i.) | Category 3 (r.t.i.) | Category 1 (r.o.) | Category 1 (d.s.), Category 3 (r.t.i.) | Category 1 (r.o.) |
| Specific target organ toxicity - Repeated exposure | – | Category 1 (r.s., n.s.) | Category 1 (r.s.) | – | – | Category 1 (r.o., heart, thyroid, b.s., rep. o(male)) | – | Category 1 (r.o.) |

note 1 NITE-CHRIP / NITE integrated version GHS classification result by the government
note 2 r.s.: respiratory system n.s.: nervous system r.t.i.: Respiratory tract irritation kid.: kidney
r.o.: respiratory organs b.s.: blood system rep.o.: reproductive organs d.s.: digestive system
note 3 "-" in the table indicates that the elements in question are classification not possible or was not conducted in the year.
note 4 See Section 2 (Hazard summary) for each category information

## 12. Ecological information

| Hazard class | [Si] | [Mn] | [Ni] | [Cr] | [Mo] | [Co] | [Cu] | [Al] |
|---|---|---|---|---|---|---|---|---|
| Year Classified: | 2009 | 2006 | 2014 | 2019 | 2015 | 2020 | 2013 | 2015 |
| Hazardous to the aquatic environment （Acute） | – | – | – | – | – | Category 1 | – | – |
| Hazardous to the aquatic environment Long term (Chronic) | – | – | – | – | – | Category 1 | – | – |
| Hazardous to the aquatic environment （Long-term） | – | Category 4 | – | – | – | – | – | – |
| Hazardous to the ozone layer | – | – | – | – | – | – | – | – |

note 1 NITE-CHRIP / NITE integrated version GHS classification result by the government
note 2 "-" in the table indicates that the elements in question are classification not possible or was not conducted in the year.
note 3 See Section 2 (Hazard Summary) for each category information.

## 13. Disposal considerations

**Waste disposal recommendations:** Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

**Additional information:** Recycle where possible and/or dispose of spent material such as metals, metal-bearing waste and submerged arc welding (SAW) flux/slug appropriately.

## 14. Transport information

The product does not correspond to a material targeted for international regulation regarding the transportation.

## 15. Regulatory information

Regulation by law of Japan

- Industrial Safety and Health Act
- Act on the Assessment of Releases of Specified Chemical Substances in the Environment and the Promotion of Management Improvement
- Waste Management and Public Cleansing Act

## 16. Other information

**References**

- ISO 11014 ”Safety data sheet for chemical products - Content and order of sections”
- Globally Harmonized System of Classification and Labeling of Chemicals (GHS)
- NITE-CHRIP / NITE integrated version GHS classification result by the government
  ( https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop )

This Safety Data Sheet is prepared on the basis of the materials and the information that are available at this time.
This is provided as reference information for businesses handling our products to ensure the safe handling chemically, and it is not a guarantee of safety.
Businesses handling please use this paper for reference, and it is necessary to take appropriate safety measures on your own responsibility according to your intended use and usage.

End of Safety Data Sheet