

# SAHAVIRIYA STEEL INDUSTRIES PUBLIC CO., LTD

## Material Safety Data Sheet (MSDS)

Date Printed: 27/03/2020

Version: 3.0

Date Update: 27/03/2020

Reference: 91/155/EEC

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### 1 - Product and Company Information

|                                    |  |
|------------------------------------|--|
| <b>Product name</b>                | 1. Hot rolled steel sheet in coils<br>2. Hot rolled steel sheet pickled and oiled in coils<br>3. Checker plate |
| <b>Company identification name</b> | Sahaviriya steel industries public co., ltd<br>9 M.7 T.Maerumphueng A.Bangsaphan Prachuabkirikhan 77140        |
| <b>Division in charge</b>          | Metallurgy and Quality assurance Department  |
| <b>Technical phone</b>             | (66-32) 691403-5 Ext. 5038   |
| <b>Fex</b>                         | (66-32) 691421   |

### 2 - Composition/Information on Ingredients

#### Base metal

| Ingredient name | Formula | CAS No.   | Percentage by weight. |
|-----------------|---------|-----------|-----------------------|
| Iron            | Fe      | 7439-89-6 | > 95.0                |

#### Alloying element

| Ingredient name          | Formula | CAS No.                | Percentage by weight.      |
|--------------------------|---------|------------------------|----------------------------|
| Carbon                   | C       | 7440-44-0              | 1.0 max                    |
| Copper                   | Cu      | 7440-50-8              | 1.0 max                    |
| Silicon                  | Si      | 7440-21-3              | 1.0 max                    |
| Sulfur                   | S       | 7704-34-9              | 0.5 max                    |
| Phosphorus               | P       | 8049-19-2              | 0.5 max                    |
| Manganese                | Mn      | 7439-96-5              | 2.0 max                    |
| Nickel                   | Ni      | 7440-02-0              | 0.5 max                    |
| Chromium                 | Cr      | 7440-47-3              | 0.5 max                    |
| Boron                    | B       | 7440-42-8              | 0.01 max                   |
| Molybdenum               | Mo      | 7439-98-7              | 0.1 max                    |
| Corrosion-inhibiting oil | -       | 64742-47-8, 64741-97-5 | 800-1600 mg/m <sup>2</sup> |

Note:

- Hot rolled coil with pickled and oiled surface shall be coated with small amounts (800-1600mg/m<sup>2</sup>) of corrosion inhibiting oil.
- All commercial steel products may contain small amounts of various element in to those specified. These small quantities (less than 0.1%) may exist as intentional additions, or as "residual" elements that generally original in the raw materials used. These elements may include: Aluminum, Antimony, Arsenic, Calcium, Cadmium, Cobalt, Columbium, Nickel, Tin, Titanium, Vanadium and Zirconium
- This product has no heavy metal component as RoHS and ELV directive by sampling

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### 3 - Hazards Identification

This product in solid state at normal condition has no hazard. When product is subjected to welding, burning, melting, sawing, grinding, or similar process, particles and fumes may be generated. Keep avoiding inhalation of metal particles and fumes. This operation having the potential to generate airborne particulates and should be protective equipment shall be used. In case of slit process the sharp remnant of iron may be generated cause of the accident to stab or cut and are dangerous to the staff. Corrosion inhibiting oil may be has healthy hazard if pass through the internal organ by swallowing

### 4 - First Aid Measures

This product in solid state at normal condition has no fire hazard. When product is subjected to welding, burning, melting, sawing, grinding, or similar process, particles and fumes may be generated.

|                           |  |
|---------------------------|--|
| <b>After inhalation</b>   | Remove exposed person to fresh air. Consult doctor if feeling unwell   |
| <b>After skin contact</b> | Wash off with plenty of water and remove contaminated<br>Consult doctor if feeling unwell.   |
| <b>After eye contact</b>  | For corrosion inhibiting oil, rinse out with plenty of water with the eyelid held wide open. Consult doctor if feeling unwell.<br>For the eyes contact with particles to consult doctor. |
| <b>After swallowing</b>   | Not probable route of industrial exposure, however, if ingested, seek medical attention immediately.   |
| <b>After cutting</b>      | Wash off with plenty of water. Consult doctor if feeling unwell or do not have the vaccine of tetanus.   |

### 5 - Fire - Fighting Measures

#### **Burning**

This product in solid state at normal condition has no fire hazard. However this product can be melt When processed by high temperature condition at melting point.

|                                |  |
|--------------------------------|--|
| <b>Fire-fighting equipment</b> | Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or positive pressure mode and full protective clothing and can use the dry chemical, CO <sub>2</sub> , Halonite, FM200. |
|--------------------------------|--|

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### 6 - Accidental Release Measure

#### Procedure(s) of personal precaution(s)

Not applicable to steel in solid state at normal condition. When product is subjected to welding, burning, melting, sawing, grinding, or similar process, particles and fumes may be generated, For spills or spread involving finely divided particles may be easily dispersing to the environment. Please carefully the transporting. For operation which is accordingly the personal protective equipment shall be used. Beside, the corrosion inhabiting oil on the hot rolled coil surface you can not discard to the public ditch.

### 7 - Handling and Storage

#### Handling

To carefully move the product with safety practice, do not collide with people or matter and the personal protective equipment shall be properly used when you touch the hot rolled coil.

#### Storage

Avoid unnecessary contact with water or high humidity environment, oxidizing agents and serious product keep in indoor yard.

### 8 - Exposure Controls / Personal Protection

When product is subjected to welding, burning, melting, sawing, grinding, or similar process, particles and fumes may be generated, where the above conditions operating, the following equipment should be applied.

#### Personal protective equipment

|                               |                   |
|-------------------------------|-------------------|
| <b>Hand protection</b>        | Protective gloves |
| <b>Skin protection</b>        | Work clothes      |
| <b>Eye protection</b>         | Safety goggles    |
| <b>Respiratory protection</b> | Wear dust mask    |

### 9 - Physical and Chemical Composition

#### Appearance

|   |  |
|---|--|
| Hot rolled steel sheet in coils                   | Solid with metal black color                               |
| Hot rolled steel sheet pickled and oiled in coils | Solid and metal gray with corrosion inhibiting oil coating |
| Checker plate                                     | Solid and metal black color with pattern                   |

**Melting point range** 1510°C - 1540°C

**Boiling point** -

**Density** 7.85 g/cm<sup>3</sup>

**Specific gravity** 7.85

**pH** -

**Viscosity** -

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### 10 - Stability and Reactivity

**Condition of instability** Steel products are stable under normal storage and handling condition. However, rust may appear if the product contact with water, oxidizing agents, strong acids, calcium hypochlorite or store at high humidity environment.

**Materials and chemical to avoid** Water, oxidizing agents, strong acids, calcium hypochlorite

### 11 - Toxicological Information

No information is available for the product. For the best of our knowledge, the chemical, physical, and toxicology properties have not been thoroughly investigated. When product is subjected to welding, burning, melting, sawing, grinding, or similar process, particles and fumes may be generated.

**Eye effect** eye contact with the individual components may cause particulate irritation. Implantation of iron particles in guinea pig corneas have resulted in rust rings with corneal softening about rust ring.

**Skin effect** Skin contact with individual particles components may cause physical abrasion, irritation, dermatitis, and sensitization.

**Acute inhalation effect** Inhalation of the individual alloy components has been shown to cause various respiratory effects.

**Acute oral effect** As below table

| Item | Element     | Detail                                    |
|------|-------------|---|
| 1    | Iron        | LD 50: 30 /Kg oral (rat).                 |
| 2    | Calcium     | LD 50: No data                            |
| 3    | Carbon      | LD 50: No data                            |
| 4    | Copper      | TD <sub>LO</sub> : 120 ug/kg oral (human) |
| 5    | Manganese   | LD 50: 9 g/kg oral (rat)                  |
| 6    | Phosphorous | LD 50: No data                            |
| 7    | Silicon     | LD 50: 3160 mg/kg oral (rat)              |
| 8    | Sulfur      | LD 50: 78437 mg/kg oral (rat)             |

Reference: See RTECS (NO4565500) for additional toxicity data on iron, (CEV 8040000) for calcium, (FF5250100) for carbon, (GL5325000) for copper, (OO9275000) for manganese, (VW0400000) for silicon, (WS42500) for sulfur.

### 12 - Ecological Information

No data available.

### 13 - Disposal Consideration

Steel scrap should be recovered for use or recycling whenever possible. Basically, disposal is entrusted to legally approved industries waste management contractors.

### 14 - Transport Information

No data available. ( This product is not specified in hazard substance act of Thailand, which is identify the transportation method)

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### 15 - Regulatory Information

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This product and or its constituents are subjected to the following main regulation.

**ROHS:** The product as whole and componants of this product are not listed.

**ELV:** The product as whole and componants of this product are not listed.

**GADSL:** The product as a whole is not listed but individual componants of the product are listed.

However, two componants are listed. They are lightly value and not exceed the limit value. They are intentionally added in product for improving the properties of product as international standard.

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### 16 - Other Information

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The purpose of this document shall be used only as a guide. The information in this document in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Company shall not be liable for any damage resulting from handing or from contact with the above product.