

Safety Data Sheet (SDS)

(In compliance with JIS Z 7253:2012)

1. Identification

Product Identifier : High-Speed Steel Tool
Supplier's Details:
Name : OSG USA, INC.
Address : 676 E Fullerton Avenue
Glendale Heights, IL 60139
Department in Charge : Engineering Dept.
Telephone : (800)837-2223
FAX : (800)837-3334
Emergency Telephone Number : (800)837-2223
Issue Date : April 1, 2009
Revision Date : November 14, 2013
Reference Number : HSS090408-3J

2. Hazard Identification

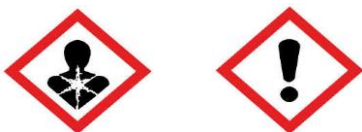
GHS Classification (Mn, Cr, Mo, W, or Co, which is contained in the product, has the following effects.)

Health Hazard Class	: Category :	Hazard Statements
Serious eye damage/ Eyes irritation	: 2B	Causes eye irritation (H320)
Respiratory sensitization	: 1	May cause allergy or asthma symptoms or breathing difficulties if inhaled (H334)
Skin sensitization	: 1	May cause an allergic skin reaction (H317)
Germ cell mutagenicity	: 2	Suspected of causing genetic defects (H341)
Carcinogenicity	: 2	Suspected of causing cancer (H351)
Reproductive toxicity	: 1B	May damage fertility or the unborn child (H360)
Specific target organ toxicity-single exposure	: 1	Causes damage to organs (respiratory organs and kidney) (H370)
	: 2	May cause damage to organs (systemic toxicity) (H371)
	: 3	May cause respiratory irritation (respiratory tract irritation) (H335)
Specific target organ toxicity-repeated exposure:	1	Causes damage to organs through prolonged or repeated exposure (Nervous system and respiratory organs) (H372)
Environmental Hazard Class		
Hazardous to the aquatic environmental, chronic toxicity:	4	May cause long-lasting harmful effects to aquatic life (H413)

Hazards (e.g. physical hazards) not stated here are "Not classified", "Not applicable" or "Classification not possible".

Signal Word: Danger

GHS Label Elements:



Other Hazards which do not result in classification

- * High-Speed Steel Tool is physically and chemically stable in solid form. There is no physical or chemical hazard such as ignition ability or flammability. There is no human health hazard such as reproductive toxicity. There is no environmental hazard such as acute aquatic toxicity.
- * When dust or fine powder of grinding dust of the tool is dry or deposited together with oil and grease, it becomes pyrophoric or highly flammable. As no burning velocity data is available, this hazard is not classified under GHS.
- * The inhalation of dust produced through dry surface grinding processes may cause lung disorders such as pneumoconiosis.

Precautionary statement

Prevention precautionary

- *Do not handle until all safety precautions have been read and understood.
- *Use appropriate personal protective equipment and ventilators to prevent exposure.
- *Do not breathe dust/fume/vapors/spray.
- *Contaminated work clothing should not be allowed out of the workplace.
- *Wash contaminated clothing before reuse.
- *Do not eat, drink or smoke when using this product.
- *Avoid release to the environment.

3. Composition/Information on Ingredients

Substance/Mixture: Mixture (alloy)

High-Speed Tool Steel Tool may be coated or surface-treated with the following substances:

Coated with: CrN, (Al,Ti)N, TiC, TiCN, TiN,ALCrN,TiSiN,C(DLC)

Surface-treated with: Steam treatment (Fe₃O₄), nitriding treatment (Fe₄N, Fe₂N)

Composition and Ingredients

Ingredient	Chemical Formula	CAS No	PRTR Law Reference No	ISHL Ordinance No	Composition wt%
Iron	Fe	7439-89-6	Not applicable	Not applicable	the rest
Silicon	Si	7440-21-3	Not applicable	Not applicable	0 - 0.7
Manganese	Mn	7439-96-5	Class 1 No 412	Attached List 9 - 550	0 - 0.5
Chromium	Cr	7440-47-3	Class 1 No 87	Attached List 9 - 142	3 - 5
Molybdenum	Mo	7439-98-7	Class 1 No 453	Attached List 9 - 603	0 - 10
Tungsten	W	7440-33-7	Not applicable	Attached List 9 - 337	1 - 15
Vanadium	V	7440-62-2	Class 1 No 321	Not applicable	1 - 8
Cobalt	Co	7440-48-4	Class 1 No 132	Attached List 9 - 172	0 - 12

(Note: High-speed steel tool which doesn't contain cobalt as the effective element may have 0.1% or more cobalt impurities.)

4. **First-Aid Measures**

IF FEELING UNWELL:

- * Get medical advice/attention.

IF INHALED (IF SUSPECTED INHALATION OR IF RESPIRATORY SYMPTOMS ARE EXPEROENCED):

- * If inhaled a high concentration of dust or if suspected inhalation, remove victim to fresh air, loosen his clothes, tie, belt, etc., and keep at rest in a position comfortable for breathing.
- * If respiratory symptoms (coughs, gasping, shortness of breath, etc.) are experienced during work, immediately get medical advice/attention.

IF ON SKIN:

- * If an abnormal sensation is felt when the skin is contacted with dust from, for instance, grinding dust, wash the skin with plenty of water. If required, rinse the skin thoroughly with soap and the like.
- * If skin irritation or rash occurs, get medical advice/attention

IF IN EYES:

- * If dust such as grinding dust is in eyes, immediately flush eyes with running water for several minutes and then get medical advice. (Remove contact lenses if easily possible.)
- * Keeping eyelids open so that water can clean all over the eyeball thoroughly, be very careful not to damage the eyeball by rubbing.

5. **Fire-fighting Measures**

Extinguishing Media:

- * When stored or used, this product is in non-flammable solid form, and therefore, no restrictions are imposed on uses of normal water sprayers or fire extinguishers etc. in case of fire in the surrounding area. In the case of a metal fire, use a special powder or dry sand. Other fire extinguishing agents are not allowed.

Specific hazards with regard to fire-fighting:

- * When dust or fine powder from grinding dust of the tool is dry or deposited together with oil and grease, it becomes pyrophoric or highly flammable.
- * Dust scattered in the air may be inflammable and explosive under certain conditions.
- * In fire extinguishing, use personal protective equipment such as protecting clothing, air breathing apparatus, closed-circuit oxygen breathing apparatus, rubber boots, and fire resistant clothing.

6. **Accidental Release Measures**

This product is in solid form and releases no harmful substances when stored or used. The following measures apply to dust generated during machining and liquid waste containing component elements.

Personal Precautions

- * Wear suitable personal protective equipment to prevent dust inhalation and eye contact.

Environmental Precautions

- * Immediately take up the dust, dispose of it as industrial wastes, and prevent release in soil and water systems.

Containment and Cleanup Procedures and Equipment

- * It is most desirable that dust from grinding and machining should be cleaned up with a cleaner equipped with a filter which can take up fine particles very efficiently. If moistening is allowed, sweep with water sprayers or wet mops to prevent from dust scattering.

7. Handling and Storage

Handling

- * Do not handle until all safety precautions have been read and understood.
- * After handling dust, wash hands thoroughly before drinking, eating, or smoking.
- * Do not eat, drink, or smoke in areas where dust is generated.
- * Avoid scattering dust in the air by using local exhaust ventilation in areas where dust is generated.
- * If risk of dust inhalation exists, wear suitable dust mask or respiratory protection regardless whether local exhaust ventilation has been installed or not.
- * Dust contaminated work clothing should not be allowed out of the workplace.
- * Wash dust contaminated work clothing before reuse.

Storage

- * Avoid high humidity and keep away from chemical substances such as acids.
- * Store locked up depending on the situation.

8. Exposure Controls/Personal Protection

Acceptable concentration

- * The concentration of the component elements in working environment should not exceed the exposure limits shown in the following table when dust, fume, gas, metals and its compounds vapors are generated during grinding or surface treatment. (The exposure limits, in accordance with the Ordinance on Prevention of Hazards due to Specified Chemical Substances, are 0.02mg/m³ for cobalt metal, 0.2mg/m³ for manganese metal, and 0.5mg/m³ for chrome metal.)
- * Use local exhaust ventilation and dust collector, or ventilate the whole area if there is a risk of inhalation or exposure of the component elements. If not possible, wear dust protective mask, respiratory protection, or protective gloves.
- * If metals are dissolved through pickling or descaling, avoid touching or inhaling the dissolved substances.
(When machining a tool which contains cobalt of 1% or more, take preventive and protective

measures against exposure in accordance with the Ordinance on Prevention of Hazards due to Specified Chemical Substances.)

Exposure Limits in Working Environment (Reference 1, 2, and 3)

Ingredient	Chemical Formula	*OSHA PEL mg/m ³ (Metal Dust Concentration)	**ACGIH TLV mg/m ³ (Metal Dust Concentration)	Japan Society for Occupational Health Exposure limit mg/m ³
Iron	Fe	***N/A	N/A	N/A
Silicon	Si	15	10	N/A
Manganese	Mn	5	0.2	0.3
Chromium	Cr	0.5	0.5	0.5
Molybdenum	Mo	15	10	N/A
Tungsten	W	N/A	5	N/A
Vanadium	V	N/A	N/A	N/A
Cobalt	Co	0.1	0.02	0.05

*OSHA: Occupational Safety & Health Administration U.S.Department
 PEL: Permissible Exposure Limit

**ACGIH: American Conference of Governmental Industrial Hygienists Inc.
 TLV: Threshold Limit Value

***N/A: Not Applicable

Respiratory Protection

* Use of dust protective mask or respiratory protective equipment is recommended to protect from dust, fume, and mist.

Hand Protection

* Use of protective gloves for dust is recommended.

Eye Protection

* Use of safety glasses or goggles for dust is recommended.

Skin/Body Protection

* Clean up deposited dust on clothing, rags, etc. by washing or absorbing with suitable filters. Used clothes should be changed as often as necessary.

9. Physical and Chemical Properties

Appearance/Odor	*1 Lustrous silver (grinded surface), odorless		
Boiling Point	High-Speed Steel Tool: No data (for reference *2) Pure iron: 2,750°C	Specific gravity (H ₂ O=1)	7 - 9
Vapor Pressure(mmHg)	No data	Vaporized	0
Gas Density (Air=1)	No data	Evaporation rate	No data
Solubility in Water	Insoluble	Melting Point	1,200 – 1,400 °C

*1 In many instances, the appearance of the product with a coated or processed surface changes.

*2 Rikagaku Jiten, 5th Edition, Iwanami Shoten (1998)

10. Stability and Reactivity

Reactivity

The case contact with chemicals such as acid may cause to generate harmful gases.

Chemical Stability

This product is in solid form and therefore chemically stable as it is but not explosive, flammable, combustible, pyrophoric, water-incompatible, and oxidizing.

Possibility of Hazardous Reactions

Conditions to Avoid

Scattering of fine powders (including fume)

Incompatible Materials

Oxidizer (hydrogen peroxide solution, fluoride, lead oxide, nitric acid, sulfuric acid, etc.)

11. Toxicological Information

Acute Toxicity (Inhalation: mist, dust)

* No data available

Skin Corrosion/Irritation

* No data available

Serious eye damage/Eye Irritation

* No data available

Respiratory/Skin Sensitization

* No data available

Germ Cell Mutagenicity

* No data available

Reproductive Toxicity

* No data available

Carcinogenicity (Reference 1, 2, and3)

* No data available

Specific Target Organ Toxicity

* No data available

Aspiration Hazard

* No data available

12. Ecological Information

Hazardous to the Aquatic Environment

* No data available

13. Disposal Considerations

Disposal Methods

- * Tungsten, cobalt, etc. in materials are rare metals and therefore it is recommended to be recycled as resources.
- * For disposal, conform to the applicable laws regarding industrial wastes such as ‘Waste Disposal and Public Cleansing Law’ and relevant local bylaws.
However, the disposal of chrome, molybdenum, manganese, and cobalt may be required to be reported according to the Law concerning Pollutant Release and Transfer Register.

14. Transport Information

International Regulation

Maritime Regulatory Information	Non-dangerous goods (other than metal powder)
Marine Pollutant	Not applicable
Aviation Regulatory Information	Non-dangerous goods (other than metal powder)

Local Regulation

Land Regulatory Information	Not applicable (other than metal powder)
Maritime Regulatory Information	Non-dangerous goods (other than metal powder)
Marine Pollutant	Not applicable
Aviation Regulatory Information	Non-dangerous goods (other than metal powder)

Special Precautions

- * Load so that the container may not damage or corrossions may not occur to ensure that the cargo should be protected from collapsing.
- * Handle carefully so as not to get injured with the edges.

15. Regulatory Information

- * The Industrial Safety and Health Law, The Enforcement Order of the Industrial Safety and Health Act Cabinet Order, The Ordinance on Industrial Safety and Health
- * Law concerning Pollutant Release and Transfer Register
- * The Ordinance on Prevention of Hazards Due to Specified Chemical Substances

16. Other Information

Disclaimer

- * The contents of this SDS are based on material and information available as of the end of January in 2013 and may be revised due to knowledge newly obtained.
- * The precautions described herein apply only to normal uses, and not guarantee of use.

Website of Ministry of Economy, Trade and Industry: <http://www.meti.go.jp/>

Website of Ministry of Environment: <http://www.env.go.jp/>

Website of Health, Labour, and Welfare: <http://www.mhlw.go.jp/>

Website of Japan Advanced Information Center of Safety and Health (Japan Industrial Safety and Health Association): <http://www.jaish.gr.jp/>

ICSC database: <http://www.nihs.go.jp/ICSC/>

Reference

1. Japan Advanced Information Center of Safety and Health:
http://anzeninfo.mhlw.go.jp/user/anzen/kag/kagaku_index.html
* Online safety and health information/chemical substances
2. Japan Society for Occupational Health
Recommendation of Occupational Exposure Limits (2003)/Occupational carcinogens (2003)
3. U.S. Department of Labor Occupational Safety & Health Administration
Regulations (Standards - 29 CFR) /TABLE Z-1 Limits for Air Contaminants
- 1910.1000 TABLE Z-1 (OSHA PEL)
4. International Chemical Safety Cards (English version, Japanese version)
5. JIS Z7253: JIS Search: <http://www.jisc.go.jp/app/JPS/JPSO0020.html>