



# SAFETY INFORMATION SHEET

## Ceramic products

Internal No.: 202EN

Issued: 14 Dec 2017

### 1: Identification of the article/product and of the company / undertaking

#### 1.1: Product identifier

<b>Article/Product Name</b>	Ceramic cutting tools, including also silicon nitride ceramics, whisker reinforced ceramics and Sialon grades. Coated and uncoated.
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#### 1.2: Relevant identified uses of the article and uses advised against

<b>Identified Uses</b>	Cutting mainly of metallic materials.
<b>Uses advised against</b>	Avoid re-shaping or re-grinding ceramic articles without appropriate exposure controls (e.g. ventilation, personal protection equipment). Operations such as cutting, sharpening, or grinding ceramic tools may produce dusts, which may be inhaled, ingested or come in contact with eyes and skin.

#### 1.3: Details of the supplier of the article information data sheet

<b>Name</b>	Sandvik Machining Solutions USA LLC. (dba: Sandvik Coromant)
<b>Address</b>	1702 Nevins Road, Fair Lawn, NJ USA
<b>Phone</b>	201 794-5000
<b>E-mail of competent person responsible for the Article Information Data Sheet</b>	karl.almquist@sandvik.com

#### 1.4 : Emergency telephone number

<b>Emergency No.</b>	Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-527-3887 (collect calls accepted)
<b>Hours of Operation</b>	24 hours per day / 7 days per week

### 2: Hazards Identification

#### WARNING

**Fragmentation hazard:** Cutting tools and holders may fragment in use. Always wear safety equipment and keep machine guards in place.

**Dust and mist hazard:** Operations such as grinding and cutting of ceramic products may produce dust or fumes, which can be inhaled, swallowed or come in contact with the skin and eyes. Use ventilation control and respiratory protection.

**Sensitising hazard:** To minimize the risk of an allergic skin reaction when handling solid ceramic tools, use gloves or in another way avoid direct skin contact.

#### 2.1: Classification of the article

<b>Classification according to EC 1272/2008:</b>	Not applicable for articles
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**2.2: Label elements (according to EC 1272/2008)**

<b>Hazard pictogram(s):</b>	Not applicable for articles
<b>Signal word:</b>	
<b>Hazard Statement(s):</b>	
<b>Precautionary statement(s):</b>	
<b>2.3: Other Hazards</b>	
PBT or vPvB	Not applicable for articles

**3: Article Composition****3.1: Information on article constituents**

Ceramics may be coated with the following substances: Al<sub>2</sub>O<sub>3</sub>, (Al, Ti)N, CrN, Ti(B,C,N), TiC, (Ti, Zr)N

Ceramics may contain one or several of the ingredients below:

Identification Name	EINECS No.	CAS No.	Weight % Content	Classification CLP
Aluminum Oxide	215-691-6	1344-28-1	0 – 100	Not classified under GHS
Zirconium Oxide	215-227-3	1314-23-4	0 – 10	Not classified under GHS
Ytterbium Oxide	215-234-0	1314-37-0	0 – 5	Not classified under GHS
Yttrium Oxide	215-233-5	1314-36-9	0 – 15	Not classified under GHS
Magnesium Oxide	215-171-9	1309-48-4	0 – 5	Not classified under GHS
Chromium Oxide	215-160-9	1308-38-9	0 – 1	Not classified under GHS
Cerium Oxide	215-150-4	1306-38-3	0 – 5	Not classified under GHS
Yttrium Aluminum Oxide			0 – 5	Not classified under GHS
Silicon Carbide	201-991-8	409-21-2	0 – 40	Not classified under GHS
Zirconium Carbide	235-125-1	12070-14-3	0 – 10	Flam. Sol. 1 H228
Aluminum Nitride	246-140-8	24304-00-5	0 – 20	STOT RE 1: H372 (Lung, inhalation) Aquatic chronic 1: H410
Silicon Nitride	234-796-8	12033-89-5	0 – 100	Not classified under GHS
Titanium Nitride	247-117-5	25583-20-4	0 – 30	Not classified under GHS
Cobalt	231-158-0	7440-48-4	0 – 0.5	Carc 1B, H350i, Eye Irrit. 2B, H320 Repr. 2; H361f, Acute Tox. 1, H330 Acute Tox. 4, H302 Resp. Sens. 1B, H334 Skin Sens. 1, H317 Aquatic Acute 1 (M=10), H400 Aquatic Chronic 1, (M=1), H410
Nickel	231-111-4	7440-02-0	0 – 0.5	Carc. 2, H351 STOT RE 1, H372 Skin Sens. 1, H317 Aquatic Chronic 3, H412

Magnesium compound			0 – 1	
Tungsten Carbide	235-123-0	12070-12-1	0 – 5	Not classified under GHS
Tantalum Carbide	235-118-3	12070-06-3	0 – 20	Not classified under GHS
Titanium Carbide	235-120-4	12070-08-5	0 - 70	Not classified under GHS

#### 4: First aid measures

##### 4.1: Description of first aid measures

Exposure to high volumes of powder/dust from ceramic products is not anticipated under normal conditions and use. Any dust or aerosol will mostly contain material from the workpiece or cooling media. If the tool chips, breaks, fragments or is reground/re-sharpened, it may produce exposure to dusts, which may be inhaled, ingested or come in contact with eyes and skin.

<b>Eyes</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>Inhalation</b>	Remove to fresh air. If irritation or rash persists, seek medical attention.
<b>Ingestion</b>	Rinse mouth with water and drink plenty of water afterwards. Seek medical advice if required.
<b>Skin</b>	Remove contaminated clothing. Immediately wash with soap and water and rinse thoroughly. If irritation or rash persists, seek medical attention.
<b>General advise</b>	After first aid, get appropriate medical attention.

##### 4.2: Most important symptoms and effects, both acute and delayed

In the case of generation of dust, metal powders or dust may cause mechanical eye and skin irritation. Inhalation of powder or dust may cause mild respiratory tract irritation.

#### 5: Firefighting measures

##### 5.1: Extinguishing media

To extinguish the fire of dusts resulting from grinding use dry sand, dry dolomite, ABC type powder extinguisher (general, oil, electric fire) or water (no water allowed for the dust containing cut powders of light metal such as magnesium and aluminum).

##### 5.2: Special hazards arising from the article use

Dusts resulting from grinding are very fine and under the specific conditions in which the dusts are mixed with grinding oil with low flash point, it may become pyrophoric. If dusts under very flammable conditions are dispersed in air, it may explode.

##### 5.3: Advice for firefighters

Not Applicable

#### 6: Accidental release measures

##### 6.1: Personal precautions, protective equipment and emergency procedures

Ceramic tools as provided do not present hazards that require accidental release measures. Operations such as grinding and cutting may produce dust or fumes, which can be inhaled, swallowed or come in contact with the skin and eyes. Avoid inhalation and contact with skin and eyes. Re-sharpen tools using appropriate safety and extraction systems to avoid dust exposure. Use personal protective equipment (i.e. gloves, safety goggles, dust respirator) as specified in Section 8 of this information data sheet. Ventilate area if necessary.

##### 6.2: Environmental precautions

In the case of generation of dust/mist, avoid release into the environment.

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**6.3: Methods and material for containment and cleaning up**

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Dusts resulting from grinding and mechanical processing should be removed with a cleaner equipped with a filter which holds fine dust.

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**6.4: Reference to other sections**

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See sections 8 and 13 for exposure controls and disposal considerations.

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**7: Handling and storage**

Ceramic articles as provided do not present hazards requiring precautions for safe handling or storage. Operations such as grinding and cutting of ceramic products may produce dust or fumes, which can be inhaled, swallowed or come in contact with the skin and eyes. The procedures described below relate to these operations.

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**7.1: Precautions for safe handling**

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Under normal operating conditions, the use of ceramic articles do not require special safety precautions beyond normal safety procedures for handling and using cutting tools, such as safety glasses and gloves. No smoking, eating, or drinking while using ceramic articles. Wash hands thoroughly after handling. Minimize generation of powder/dust and avoid dispersion of dust in air. Do not shake clothing, rags or other items to remove dust.

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**7.2: Conditions for safe storage, including any incompatibilities**

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Avoid sudden changes of temperature and high humidity for storage.

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**8: Exposure controls / personal protection**

The exposure control parameters listed below are for operations with ceramic articles that generate dusts or fumes including grinding, cutting, or re-sharpening.

**8.1 : Control parameters**

Country	Sweden	Germany	UK	US - NIOSH	US - OSHA
	8-h Limit Value (mg/m <sup>3</sup> )	8-h Limit Value (mg/m <sup>3</sup> )	8-h Limit Value (mg/m <sup>3</sup> )	8-h Limit Value (mg/m <sup>3</sup> )	8-h Limit Value (mg/m <sup>3</sup> )
Aluminum Oxide	4*	4*	10*	-	5††
Zirconium Oxide (as Zr)	-	1*	5	5	5
Yttrium Oxide	-	-	1(Y)	1(Y)	1(Y)
Magnesium Oxide (as Mg)	-	4*	4*	-	15***
Chromium Oxide	-	2†	-	-	-
Silicon Carbide	-	-	10*	10***	15***
Zirconium Carbide	-	1*	5	5	5
Cobalt	0.02*	0,005**** 0,0005*****	0.1*	0.05	0.1
Nickel	0.5	-	1.0	0.015	1.0
Tungsten Carbide	5	-	5	5	5

\* Inhalable aerosol; †15-minutes ††Inhalable dust \*\*\*Total dust \*\*\*\*Respirable, tolerated \*\*\*\*\*Respirable, accepted

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## 8.2: Exposure controls

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### Appropriate engineering controls:

In the case of dust generation during wet or dry grinding of cutting ceramic articles, engineering controls may include local ventilation systems with dust filters depending on degree of process automation and containment (e.g. closed vs. open processes).

### Individual protection measures:

**Eye/face protection** Use of safety glasses as appropriate and reasonably necessary.

**Skin protection** Use of work gloves and work clothes as appropriate and reasonably necessary.

**Respiratory protection** In the case of dust generation, use of respiratory protection as appropriate and reasonably necessary.

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## 9: Physical and chemical properties

Appearance:	White, Gray, Pink, Green, Brown, Black or Gold solid
Specific Gravity:	3 - 10

## 10: Stability and reactivity

### 10.1: Reactivity

May produce harmful gases in contact with acids.

### 10.2: Chemical stability

Stable

### 10.3: Possibility of hazardous reactions

Not applicable.

### 10.4: Conditions to avoid

None reported

### 10.5: Incompatible materials

None known

### 10.6: Hazardous decomposition products

None known

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## 11: Toxicological information

As sold and under normal conditions of use, ceramic products and tools do not present inhalation or ingestion hazards. Operations such as grinding or cutting of ceramic products may produce dust or fumes, which can be inhaled, swallowed or come in contact with the skin and eyes.

Uncoated ceramic products may cause an allergic skin reaction as a result of prolonged skin contact with the product.

The toxicity section described below relate to these operations.

**Carcinogenicity:** Cobalt and nickel metal when inhaled is presumed to have carcinogenic potential for humans largely based on animal evidence.

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**STOT- Repeated Exposure:** Animal studies of aluminium nitride have shown that long-term inhalation of high concentrations of causes reversible inflammatory effects in the lungs.

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## 12: Ecological information

Ceramic articles as provided to do not present an environmental hazard.

Aluminium nitride is very toxic with long lasting effects to all aquatic species.

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## 13: Disposal considerations

Dust from operations should never be allowed to enter the drains.

Responsibility for proper waste disposal of ceramic waste/residues rests with the owner of the waste. Scrap and sludges should be sent to an appropriate reclamation facility, if available. If material cannot be sent to a reclamation facility, dispose of all waste product and containers in accordance with local, state/provincial, federal, and national regulations.

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## 14: Transport information

Ceramic articles are not classified or regulated

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## 15: Regulatory information

EU: Ceramic products do not contain any SVHC substances

US: This product contains cobalt and/or nickel, which are listed in California Proposition 65 as known cancer-causing chemicals.

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## 16: Other information

<b>Full text of Classifications (CLP/GHS)</b>	Eye Irrit. 2, H319 Repr. 2; H361f, Acute Tox. 1, H330 Acute Tox. 4, H302 Carc. 1B, H350i STOT RE 1, H372	Eye irritation, category 2 Reproductive toxicity, category 2 Acute toxicity, category 1 Acute toxicity, category 4 Carcinogenicity, category 1B Specific target organ toxicity — repeated exposure, category 1
	Resp. Sens. 1B, H334 Skin Sens.1, H317	Respiratory sensitization, category 1B Skin sensitization, category 1
	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Aquatic Chronic 3, H412	Aquatic Toxicity (Acute), category 1 Aquatic Toxicity (Chronic), category 1 Aquatic Toxicity (Chronic), category 3
<b>Full text of abbreviated H statements</b>	H302 Harmful if swallowed H330 Fatal if inhaled H350i May cause cancer by inhalation	

	H372	Causes damage to organs through prolonged or repeated exposure
	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
	H317	May cause an allergic skin reaction
	H319	Causes serious eye irritation
	H361f	Suspected of damaging fertility
	H400	Very toxic to aquatic life
	H410	Very toxic to aquatic life with long lasting effects
	H412	Harmful to aquatic life with long lasting effects

**Abbreviations:**

Carc	Carcinogenic
CAS	Chemical Abstracts Service
Cat	Category
CLP	Classification, Labelling and Packaging
EC	European Commission
EINECS	European Inventory of Existing Commercial chemical Substances
EU	European Union
h	Hours
m <sup>3</sup>	Cubic meter
mg	Milligram(s)
NIOSH	National Institute for Occupational Safety and Health
No.	Number
OEL	Occupational Exposure Level
OSHA	Occupational Safety and Health Administration
PBT	Persistent, Bioaccumulative, and Toxic
RE	Repeated Exposure
REACH	Registration, Evaluation, Authorization and Restriction of CHemical substances
Resp	Respiratory
Sens	Sensitiser
STOT	Specific Target Organ Toxicity
SVHC	Substance of Very High Concern
vPvB	very Persistent, very Bioaccumulative

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**End of Safety Information Sheet**