Safety Data Sheet

according to Regulation (EC) No 1907/2006 and 1272/2008,
Hazard Communication Standard 29 CFR 1910 (USA),
WHS Regulations Australia,
JIS Z 7253 (2012) Japan

CoCr F75 Type A

Revision Date: Jan 27th, 2020

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1. IDENTIFICATION OF THE PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Identification of the mixture: Cobalt Alloy

1.2 Type: ASTM F75 CoCr alloy
Contains the following substances with hazardous properties: Cobalt

1.3 Use of the preparation: Dental Products, Brackets, Instruments, Etc.

1.4 Uses advised against: No information

1.5 Company/undertaking identification:

DynaFlex
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Lake St. Louis, MO 63367
USA
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info@dynaflex.com

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2. HAZARDS IDENTIFICATION

2.1 Classification

GHS Classification (29 CFR 1910.1200):

Regulation (EC) No. 1272/2008, HazCom 29 CFD 1910:

Skin Sensitization	Category 1	H317
Eye irritant	Category 2	H319
Respitory sensitization	Category 1	H334
Carcinogenic	Category 1	H350
Reproductive toxicant	Category 2	H361fd
Specific target organ toxicity-repeated exposure	Category 1	H372
Aquatic environment - acute hazard	Category 1	H400
Aquatic environment - long term hazard	Category 1	H410

Regulation (EC) 67/548/EEC and 1999/45/EC:

Xn; R20; R42/43; R51; R53

2.2 Label Elements

Hazard pictograms and signal word (Regulation (EC) No. 1272/2008):

GHS08

GHS09

Signal word: Danger

Hazard determining components of labelling: Nickel, Cobalt

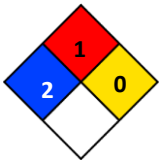
Hazard statements:

H317:	May cause an allergic skin reaction
H319:	Causes serious eye irritation
H334:	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H350:	May cause cancer
H361fd:	Suspected of damaging fertility. Suspected of damaging the unborn child
H372:	Causes damage to organs through prolonged or repeated exposure
H400:	Very toxic to aquatic life
H410:	Very toxic to aquatic life with long lasting effects

Precautionary statements:

P201:	Obtain special instructions before use.
P202:	Do not handle until all safety precautions have been read and understood.
P260:	Do not breathing dust.
P264:	Wash hands thoroughly after handling
P270:	Do not eat, drink or smoke when using this product.
P271:	Use only 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 and eye protection.
P284:	Wear respiratory protection.
P302+352:	IF ON SKIN: Wash with plenty of soap and water.
P304+340:	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312:	Call a POISON CENTER or doctor/physician if you feel unwell.
P314:	Get medical attention if you feel unwell
P333+313:	If skin irritation occurs: Get medical advice/attention.
P337+313:	If eye irritation persists: Get medical attention
P363:	Wash contaminated clothing before reuse
P391:	Collect spillage

NFPA rating



NFPA Ratings
0 = Minimal
1 = Slight
2 = Moderate
3 = Serious
4 = Severe

Hazardous Materials Identification System (HMIS):

(Degree of hazard: 0 = low, 4 = extreme);

Health	**2**
Flammability	**2**
Physical Hazards	**0**

Personal Protection:
Skin, eye protection

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Chemical characterization:

Description: Metallic alloy powder

3.2 Dangerous components:

Chemical name	CAS-No	EC-No	%	Classification	
				Regulation 67/548/EEG or 1999/45/EG	Regulation (EC) No. 1272/2008
Cobalt	7440-48-4	231-158-0	59-64	R42/43 R53	Resp. Sens 1, H334 Skin Sens. 1, H317 Eye Irrit. 2, H319 Carc. 1, H350 Repr. 2, H361 Aqu. Acute 1, H400 Aqu. Chron. 1, H410
Chromium	7440-47-3	231-157-5	27-30	Not Applicable	Not Applicable
Molybdenum	7439-98-7	231-107-2	5-7	Not Applicable	Not Applicable
Manganese	7439-96-5	231-105-1	<1	R11 R15 F	Water react. 1, H260
Iron	7439-89-6	231-096-4	<0.75	R11	Flam. Sol. 1, H228
Silicium	7439-95-4	231-104-6	<1	R11	Flam. Sol. 1, H228

4. FIRST AID MEASURES

4.1 General Information: Ensure that eyewash stations and safetyshowers are close to the workstation location.

4.2 Description of First Aid Measures
Skin contact: Wash off thoroughly with soap and water. If rash develops, seek medical attention.
Eye contact: Irrigate thoroughly with water, including under the eyelids, for at least 10-20 minutes. Obtain medical attention if irritation persists.
Inhalation: Move affected person to fresh air, rest and keep warm. In severe cases, if exposure has been great, or if respiratory irritation occurs, obtain medical attention.
Ingestion: Wash out mouth thoroughly with water. Obtain medical attention if further symptoms develop.

4.2 Most important symptoms and effects, both acute and delayed
Skin Contact: Rash may develop.
Eye Contact: Mechanical irritation.
Inhalation: Possible asthma like symptoms.
Ingestion: No information

Chronic: Can cause an allergic skin reaction with repeated or prolonged exposure consisting of redness, swelling and/or rash (urticaria).

4.3 Indications of any immediate medical attention and special treatment needed
Skin Contact: Treat symptomatically
Eye Contact: Treat symptomatically
Inhalation: Treat symptomatically

4.4 Self-protection of the first aider: Put on appropriate protective equipment (see section 8). Move exposed person to fresh air.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media: The product itself is not flammable. Adapt extinguishing measures to surroundings. Use extinguishing type D powder or sand if available.

5.2 Extinguishing media which must not be used for safety reasons: High volume water jet.

5.3 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases: increased fire hazard during dust formation.

5.4 Special protective equipment for fire-fighters: breathing protection in the presence of dust.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions: Keep unnecessary personnel away. Wear appropriate protective equipment and clothing.

6.2 Environmental precautions: Take precautions to ensure product does not contaminate ground or enter the sewer or drainage system.

6.3 Methods for cleaning up:
Wear appropriate protective equipment and clothing.

For containment:	not applicable
For cleaning up small spillage:	vacuum with equipment fitted with HEPA or immersion filtration.
For cleaning up large spillage:	solids should be carefully transferred to salvage containers. Any residues should be treated as small spillages.
Other information:	no information.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Protective measures:	Work using a suitable extraction/ventilation system.
Measures to prevent fire:	Not applicable.
Measures to protect the environment:	Use appropriate containment to avoid environmental hazard.
Advice on general occupational hygiene:	Avoid contact with skin and eyes. Do not breathe dust. Wash hand and face thoroughly after working with material. Contaminated clothing should be removed and washed before re-use.

7.2 Conditions for safe storage

Technical measures and storage conditions:	Store in sealed container in dry conditions and keep the container closed when not in use.
Packaging materials:	Keep in the container supplied, or suitable metal, plastic or polythene container.
Requirements for storage rooms and vessels:	Containers should be stored under cover in a clean and dry environment
Storage class:	Not applicable.
Further information on storage conditions:	Local regulations should be followed regarding the storage of this material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit values:

Exposure limits	OSHA/PEL	ACGIH/TLV
Cobalt	0.1 mg/m^3	0.02 mg/m^3
Chromium	1 mg/m^3	0.5 mg/m^3
Molybdenum	15 mg/m^3 *	10 mg/m^3 **
Manganese	5 mg/m^3	0.2 mg/m^3
Silicium	15/ 5 mg/m^3 (total/respiratory)	0.3 mg/m^3 (as SiO_2)
Iron	No exposure limit established	

***** insoluble compounds, total dust
** insoluble compounds, inhalable

8.2 Exposure controls

Technical measures to prevent exposure:

Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust explosion proof ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Instructual measures to prevent exposure:

Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Wash hands after handling and before eating, smoking and using the lavatory and at the end of the day.

Personal protection equipment:
Respiratory protection: If ventilation cannot effectively keep dust concentrations below established limits, appropriate certified respiratory protection must be provided. Use a dust mask or filter apparatus of minimal level FFP3 or N99.
Hand protection: Use impervious nitrile gloves.
Eye protection: Wear safety glasses or chemical goggles.
Body protection: Use long sleeved antistatic garments and closed, antistatic safety shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance:

Physical state: Powder
Colour: Dark gray
Odour: Odourless

9.2 Important health, safety and environmental information

pH (20 °C):	NA
Melting point/range (°C):	1315 - 1540
Boiling point/range (°C):	No Data
Flash point (°C):	No Data
Ignition temperature (°C):	No Data
Vapour pressure (°C):	No Data
Density (g/cm3):	8.4
Bulk density (kg/m3):	No Data
Water solubility (20°C in g/l):	No Data
Viscosity:	NA
Auto-ignition temperature:	No Data
Decomposition temperature:	No Data
Dust explosion hazard:	No Data
Explosive properties	No Data
Oxidising properties	No Data
Particle size	100% <1mm

10. STABILITY AND REACTIVITY

10.1 Chemical Stability: Stable under normal conditions and under recommended storage conditions

10.2 Reactivity: No data.

10.3 Possibility of hazardous reactions: No Data

10.4 Conditions to avoid: Prevent formation of dust clouds and accumulation of fines.

10.5 Incompatible materials: oxidizing agents. strong acids and strong bases.

10.6 Hazardous decomposition products: No data.

11. TOXICOLOGICAL INFORMATION

11.1 Likely Routes of Exposure:

Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.

11.2 Symptoms of Exposure:

Fines/dusts may irritate skin and eyes.

11.2 Acute and chronic effects:

Cobalt: Acute exposure to cobalt metal dusts or fumes is characterized by irritation to the eyes, and to a lesser extent, irritation to the skin. Chronic exposure to cobalt metal dust or fumes may cause respiratory and dermatologic signs and symptoms. Chronic exposure to cobalt by inhalation in humans results in effects on the respiratory system, such as respiratory irritation, wheezing, asthma, decreased lung function, pneumonia, and fibrosis.

Chromium: Although much is known about the health effects of chromium compounds, the health effects of chromium metal, Cr(0), is not well studied. Due to insolubility most elements in their metallic state are not considered to be serious health hazards.

Molybdenum: No data

Manganese: Chronic inhalation exposure of humans to high levels of manganese may result in a syndrome called manganism which typically begins with feelings of weakness and lethargy and progresses to other symptoms such as gait disturbances, clumsiness, tremors, speech disturbances, a mask-like facial expression and psychological disturbances. Manganese is an essential micronutrient in humans.

Silicium: No scientific data is available on the toxicity of silicium. This product is also not considered to be mutagenic, teratogenic or carcinogenic. Oral LD50 Rat: 3160 mg/kg

Iron: Irritating to the respiratory tract, iron compounds may cause pulmonary fibrosis if dusts are inhaled. Inhalation of large amounts may cause iron pneumoconiosis. Chronic inhalation of finely divided powder may cause chronic iron poisoning and pathological deposition of iron in the body tissue. Ingestion may cause vomiting, diarrhea, pink urine, black stool, and liver damage. Iron compounds may also cause damage to the kidneys.

Acute Toxicity: No data

Carcinogenicity:

Cobalt: **NTP**: R - reasonably anticipated to be a human carcinogen; **IARC**: 2B - possibly carcinogenic to humans

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12. Ecological information

12.1. Toxicity

Long-term Ecotoxicity	May cause long-term adverse effects in the aquatic environment

12.2. Persistence and degradability

Abiotic Degradation	No data available
Physical-and photo-chemical elimination	No data available
Biodegradation	Not readily biodegradable.

12.3. Bioccumulative potential

Bioconcentration factor (BCF)	No data available

12.4. Mobility in soil

Known or predicted distribution to environmental compartments	No data
Adsorption/Desorption	No data available

12.7 Additional information

Do not allow product to enter drains. Do not flush into surface water. Do not let product contaminate subsoil.

13. DISPOSAL CONSIDERATIONS

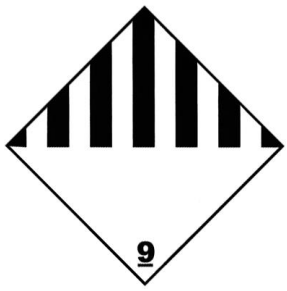
13.1 Appropriate disposal / Product: Do not contaminate sewers, drains, soil or surface waters with this material. Reduce waste by attempting to utilize product completely. Dispose of this container and its contents in accordance with all local, state, and federal regulations.

13.2 Packaging disposal: Consult local and national guidelines for the disposal of discarded packaging.

13.3 Additional information: Prior to disposal DYNAFLEX recommends consulting your local waste disposal authority or an approved waste disposal firm to ensure regulatory compliance.

14. TRANSPORT INFORMATION

UN Number	UN 3077
UN proper shipping name	Environmentally hazardous substance,solid, n.o.s. (cobalt)
Transport hazard class(es)	9
Packing group	III
Label(s)	



Environmental hazards	May cause long-term adverse effects in the aquatic environment
Special precautions for user	Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

15. REGULATORY INFORMATION

15.1 EU regulations
EINEC/ELINCS/NLP: All materials are listed
REACH Annex XVII: None listed

15.2. US FEDERAL
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): All components are listed or exempted
SARA 302/304: No products were found.
SARA 311/312: Hazards identification: Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: chromium; Nickel

15.3 Canada
WHMIS: Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
NPRI: The following components are listed: Cobalt (and its compounds); Chromium (and its compounds)

15.4 Australian regulations
SUSDP, Industrial Chemicals Act 1989:
Australian Inventory of Chemical Substances, AICS: Listed

15.5 Japanese regulations

Chemical Substance: Pneumoconiosis Act
Dust Disability Prevention Rules

Components:

Cobalt:	ISHL: Cobalt and its compounds, Deliver of Documents, etc. Articles 57-2.18-2 (MSDS), Table 9-172, ≥0.1% Cobalt and its inorganic compounds, Labeling, etc. Articles 57.18.Table 9-04, ≥0.1% Cobalt and its inorganic compounds, Specific Chemical Substances Disability Prevention Rules, 13-2 PRTR: Cobalt and its compounds, Designated Class I Substance, I-132 (previously 1-100), ≥1% Ship Safety Act: Combustible material, Pyrophoric substance Combustible material, Flammable substance Aviation Law: Transport ban; combustible material, pyrophoric substance (194-1) Clean Air Act: Cobalt and its compound, Hazardous Air Pollutants/ No. 60 of Environmental Council 9th report Labor Standards Act: Cobalt and its compounds, Rule No. 75-2
Chromium:	Water Pollution Control Law: Designated Substance PRTR: Chromium and Chromium(III) compounds, Designated Class I Substance, I-87, ≥1% ISHL: Chromium and Chromium(III) compounds, Articles 57-2 and 18-2, Table 9-142, ≥0.1% Air Pollution Control Law: Hazardous Air Pollutants/Priority Initiative No. 49 Waste Disposal and Public Cleaning Law: Article 29
Manganese:	PRTR: Manganese and its compounds, Designated Class I Substance, I-412, ≥1% ISHL: Manganese and its compounds, Articles 57-2 and 18-2, Table 9-550, ≥1% Water Pollution Control Law: Designated Substance Specific Chemical Substances Disability Prevention Rules: Designated Substance, 2-33 Clean Air Act: Hazardous Air Pollutants, No. 225
Molybdenum:	Water Pollution Control Law: Designated Substance Clean Air Act: Hazardous Air Pollutants, No. 243

OTHER INFORMATION

16.1 Relevant Hazard Statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

Skin sens. 1, H317- Skin sensitization, category 1, H317: May cause an allergic skin reaction
Eye irrit. 2, H319- Eye irritant, category 2, H319: Causes serious eye irritation
Resp. sens. 1 H334- Respiratory sensitization, H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carc.1, H350- Carcinogenicity, category 1, H350: May cause cancer
Repr. 2, H361fd- Reproductive toxicant, category 2, H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
STOT RE 1, H372- Specific target organ toxicity-repeated exposure, category 1, H372: Causes damage to organs through prolonged or repeated exposure
Aqu. Acute 1, H400- Aquatic environment – acute hazard, Categoty 1, H400: Very toxic to aquatic life.
Aqu.Chron. 1, H410- Aquatic environment - long-term hazard, category 1, H410: Very toxic to aquatic life with long lasting effects
Flam. Sol.1, H228- Flammable solids, category 1, H228: Flammable solid
Water react. 1, H260- Water reactivity, category 1, H260: In contact with water releases flammable gases which may ignite spontaneously

Relevant Precautionary statements (number and full text) referred to in sections 2 and 3 (according to (EC) No. 1272/2008):

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P260: Do not breathing dust.
P264: Wash hands thoroughly after handling
P270: Do not eat, drink or smoke when using this product.
P271: Use only 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 and eye protection.
P284: Wear respiratory protection.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P304+340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P314: Get medical attention if you feel unwell
P333+313: If skin irritation occurs: Get medical advice/attention.
P337+313: If eye irritation persists: Get medical attention
P363: Wash contaminated clothing before reuse
P391: Collect spillage

Relevant R-Phrases (number and full text) referred to in sections 2 and 3:

Xn: Harmfull
R42/43: May cause sensitization by inhalation and skin contact
R53: May cause long-term adverse effects in the aquatic environment
R11: Highly flammable
R15: Contact with water liberates extremely flammable gases
F: Flammable

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