SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	StarLoy C
REACH Registration No.:	if available listed in Chapter. 3

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

Relevant applications identified	For dental use only.

1.3. Details of the supplier of the safety data sheet

Company	DeguDent GmbH Postfach 1364 D-63403 Hanau
Telephone	+49 (0)6181/59-5576
Telefax	+49 (0)6181/59-5751
Email address	SDB.Degudent-DE@dentsplysirona.com

1.4. Emergency telephone number

Emergency information	+49 (0)6181/59-50 (This telephone number is available during office hours only.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Respiratory sensitization	Category 1	H334
Skin Sensitisation	Category 1	H317
Hazardous to the aquatic environment - Chronic Hazard	Category 4	H413
Reproductive toxicity	Category 1	H360F
Carcinogenicity	Category 1	H350
Germ cell mutagenicity	Category 2	H341

2.2. Label elements

Labelling as per (EU) 1272/2008

Statutory basis: EU-CLP as per Regulation (EU) No. 1272/2008, Annex VI

hazard-defining component(s) (GHS)

- cobalt

Hazard pictograms

Signal word	Danger
Hazard statement	H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H317 - May cause an allergic skin reaction. H413 - May cause long lasting harmful effects to aquatic life. H341 - Suspected of causing genetic defects. H350 - May cause cancer. H360F - May damage fertility.
Precautionary statement	P280 - Wear protective gloves/protective clothing/eye protection.
Precautionary statement: Prevention	P261 - Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P272 - Contaminated work clothing should not be allowed out of the workplace. P273 - Avoid release to the environment. P284 - Wear respiratory protection.
Precautionary statement: Reaction	P302 + P352 - IF ON SKIN: Wash with plenty of water/ soap. P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician. P363 - Wash contaminated clothing before reuse.
Precautionary statement: Storage	P405 - Store locked up.
Precautionary statement: Disposal	P501 - Dispose of contents/container in accordance with local regulation.

2.3. Other hazards

May react forming chromium(VI) compounds when processing thermally., Possible release of metallic vapors when melted.
Cobalt vapor will be released while processing., Limited evidence of a carcinogenic effect.
A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

SECTION 3: Composition/information on ingredients

3.1. Substances

–

3.2. Mixtures

Information on ingredients / Hazardous components as per EU-CLP Regulation (EC) No. 1272/2008

• **cobalt**	59.4%				
CAS-No.	7440-48-4	EC-No.	231-158-0		
Respiratory sensitization				Category 1	H334
Skin Sensitisation				Category 1	H317
Hazardous to the aquatic environment - Chronic Hazard				Category 4	H413
Germ cell mutagenicity				Category 2	H341
Toxicity to reproduction				Category 1B	H360F
Carcinogenicity				Category 1B	H350
• **chromium**			24.5%		
CAS-No.	7440-47-3	EC-No.	231-157-5		
• **tungsten**	10.0%				
CAS-No.	7440-33-7	EC-No.	231-143-9		

• **Niobium** 2.0%			
CAS-No.	7440-03-1	EC-No.	231-113-5
• **Vanadium**			2.0%
CAS-No.	7440-62-2	EC-No.	231-171-1
• **molybdenum**			1.0%
CAS-No.	7439-98-7	EC-No.	231-107-2
• **Silicium** 1.0%			
CAS-No.	7440-21-3	EC-No.	215-609-9
• **iron** 0.1%			
CAS-No.	7439-89-6	EC-No.	231-096-4

Texts of H phrases, see in Chapter 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Remove to fresh air.
If symptoms persist, call a physician.

Skin contact
Wash off with soap and water.
In the case of skin irritation or allergic reactions see a physician.

Eye contact
Rinse with plenty of water.
If eye irritation persists, consult a specialist.

Ingestion
Clean mouth with water and drink afterwards plenty of water.
Obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms
None known

Hazards
None known

4.3. Indication of any immediate medical attention and special treatment needed

None known

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Special powder against metal fire
quenching powder
dry sand
common salt

Unsuitable extinguishing media: Water
Carbon dioxide (CO_2)

5.2. Special hazards arising from the substance or mixture

Can be released in case of fire: cobalt oxide.

5.3. Advice for firefighters

The product itself does not burn.
Prevent fire extinguishing water from contaminating surface water or the ground water system.

In the event of fire, wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation.
Avoid breathing dust.
In case of dust being formed, provide for adequate extraction.
Ensure suitable suction/aeration at the work place and with operational machinery.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Use mechanical handling equipment.
Avoid dust formation.
Fill into marked, sealable containers.

6.4. Reference to other sections

Wear personal protective equipment; see section 8.
Disposal considerations; see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

In case of melting, soldering or grinding:
Local ventilation.
Avoid dust formation.
In case of dust or vapor: Wear personal safety equipment
Dusts and vapors: Do not inhale.

7.2. Conditions for safe storage, including any incompatibilities

Storage
No special storage conditions required.

German storage class
13 - Non Combustible Solids

7.3. Specific end use(s)

We are unaware of any specific end uses which go beyond the data reported in Section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

• **cobalt**			
CAS-No. Control parameters	7440-48-4 0.1 mg/m3	EC-No.	231-158-0 Time Weighted Average (TWA):(EH40 WEL)
Control parameters	0.02 mg/m3		Time Weighted Average (TWA):(NZ OEL)
Control parameters	0.02 mg/m3		Time Weighted Average (TWA):
Control parameters	0.02 mg/m3		Time Weighted Average (TWA):(KOR OEL)
• **chromium**			
CAS-No. Control parameters	7440-47-3 0.5 mg/m3	EC-No.	231-157-5 Time Weighted Average (TWA):(EH40 WEL)
Control parameters	2 mg/m3 Indicative		Time Weighted Average (TWA):(EU ELV)
Control parameters	0.5 mg/m3		Time Weighted Average (TWA):(NZ OEL)
Control parameters	0.5 mg/m3		Time Weighted Average (TWA):

Control parameters	0.5 mg/m3		Time Weighted Average (TWA):(KOR OEL)
• **tungsten**			
CAS-No. Control parameters	7440-33-7 5 mg/m3	EC-No.	231-143-9 Time Weighted Average (TWA):(EH40 WEL)
Control parameters	10 mg/m3		Short Term Exposure Limit (STEL):(EH40 WEL)
• **molybdenum**			
CAS-No. Control parameters	7439-98-7 20 mg/m3	EC-No.	231-107-2 Short Term Exposure Limit (STEL):(EH40 WEL)
Control parameters	10 mg/m3		Time Weighted Average (TWA):(EH40 WEL)
• **Silicium**			
CAS-No. Control parameters type of exposure	7440-21-3 10 mg/m3 Inhalable dust.	EC-No.	215-609-9 Time Weighted Average (TWA):(EH40 WEL)
Control parameters type of exposure	4 mg/m3 Respirable dust.		Time Weighted Average (TWA):(EH40 WEL)

8.2. Exposure controls

Engineering measures
Cobalt vapor will be released while processing., Adequate exhaustion / ventilation of the work site or machinery must be assured. Vacuuming of objects.

Personal protective equipment

Respiratory protection
In case of working with / without sufficient object exhaustion:, Respirator with P3 particle filter

Hand protection
Protective gloves
Glove material butyl-rubber, Nitrile rubber, Natural Rubber/Natural latex (NR)

Eye/face protection
Safety glasses with side-shields, In case of smoke or dust development: goggles

Skin and body protection
If cobalt - vapour occurs: Change contaminated clothing., Apply adequate skin protection agents before handling the product. Assure skin cleaning and skin care after work. Preventive skin protection is recommended.

Hygiene measures
If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used., Do not eat, drink, smoke, or sniff while at work. Wash your hands and/or face before breaks and before termination of work., Do not inhale smoke, dust, vapor., If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Form	solid
Colour	white
Odour	odourless
Odour threshold:	not applicable
pH	not applicable (solid)

Melting point/range	1270 - 1370 °C
Boiling point/range	not applicable (solid)
Flash point	does not flash
Evaporation rate	not applicable, (solid)
Flammability (solid, gas)	not flammable
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapour pressure	not applicable
Vapour density	not applicable
Density	8.8 g/cm3
Water solubility	insoluble
Partition coefficient: n-octanol/water	not applicable
Autoinflammability	Not capable of spontaneous combustion or heating.
Thermal decomposition	not applicable
Viscosity, dynamic	not applicable
Explosiveness	not applicable
Oxidizing properties	not oxidizing

9.2. Other information

Other information: No further physicochemical data were determined.

SECTION 10: Stability and reactivity

10.1. Reactivity
no data available

10.2. Chemical stability
The product is chemically stable.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions: No dangerous reactions known.

10.4. Conditions to avoid
No limitations

10.5. Incompatible materials
None known

10.6. Hazardous decomposition products
Decomposition products occurring when heated above melting temperature
metallic vapors

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity	no data available
Acute inhalation toxicity	no data available
Acute dermal toxicity	no data available
Skin irritation	no data available
Eye irritation	no data available
Sensitization	May cause sensitisation of susceptible persons by skin contact or by inhalation of dust., Allergic reactions caused by ions of cobalt and chromium are known. For none of the cobalt and chromium containing alloys of DeguDent a documented allergic reaction is known.
Repeated dose toxicity	no data available
Mutagenicity assessment	no data available
Carcinogenicity	No data available
Toxicity to reproduction	No data available
Human experience	Toxic effects from handling this product are unknown as yet. The solubility of the alloy is extremely low. It must therefore be assumed that the daily uptake of these elements is considerably exceeds that from the alloy., As a constituent of vitamin B12 cobalt is an essential element of the human body ., Molybdenum is an essential element of the human body., The daily dietary uptake of chromium amounts to several milligrams., Information taken from reference works and the literature.
Further information	No hazardous reactions are known if properly handled and stored. Cobalt (dusts and vapours):, Clues to possible carcinogenic effects in animal experiments. literature

SECTION 12: Ecological information

12.1. Toxicity

No ecotoxicological data is available for this product.

12.2. Persistence and degradability

Biodegradability: no data available

12.3. Bioaccumulative potential

Bioaccumulation: no data available

12.4. Mobility in soil

Mobility: The product is insoluble in water.
No further information available

12.5. Results of PBT and vPvB assessment

A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

12.6. Other adverse effects

Further Information: Dusts and water-soluble forms of the alloy:, Introduction into soil, natural water bodies or sewerage must be prevented.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product

Disposal according to local authority regulations.

Uncleaned packaging

Disposal according to local authority regulations.

SECTION 14: Transport information

Not dangerous according to transport regulations.

14.1.	UN number:	**--**
14.2.	UN proper shipping name:	**--**
14.3.	Transport hazard class(es):	**--**
14.4.	Packing group:	**--**
14.5.	Environmental hazards:	**--**
14.6	Special precautions for user:	No

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National legislation

15.2. Chemical safety assessment

Chemical safety assessment: No Chemical Safety Report as per Articles 2(8), 2(9) or 14 of the REACH Regulatione is required for this product.

SECTION 16: Other information

Classification and applied procedure to derive the classification of mixtures according to EU Regulation (EC) No. 1272/2008 (CLP)

Classification	Classification procedure
Resp. Sens., 1 , H334 Skin Sens., 1 , H317 Aquatic Chronic, 4 , H413 Repr., 1 , H360F Carc., 1 , H350 Muta., 2 , H341	

Relevant H phrases from chapter 3

H317	:	May cause an allergic skin reaction.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	:	Suspected of causing genetic defects.

H350	:	May cause cancer.
H360F	:	May damage fertility.
H413	:	May cause long lasting harmful effects to aquatic life.

Further information

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Legend

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BetrSichV	German Ordinance on Industrial Safety and Health
c.c.	closed cup
CAS	Chemical Abstract Services
CESIO	European Committee of Organic Surfactants and their Intermediates
ChemG	German Chemicals Act
CMR	carcinogenic-mutagenic-toxic for reproduction
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
EC50	half maximal effective concentration
GefStoffV	German Ordinance on Hazardous Substances
GGVSEB	German ordinance for road, rail and inland waterway transportation of dangerous goods
GGVSee	German ordinance for sea transportation of dangerous goods
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
ISO	International Organization For Standardization
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
REACH	REACH registration
RID	Convention concerning International Carriage by Rail
STOT	Specific Target Organ Toxicity

SVHC	Substances of Very High Concern
TA	Technical Instructions
TPR	Third Party Representative (Art. 4)
TRGS	Technical Rules for Hazardous Substances
VCI	German chemical industry association
vPvB	very persistent, very bioaccumulative
VOC	volatile organic compounds
VwVwS	German Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes
WGK	Water Hazard Class
WHO	World Health Organization