

FLX-CRM 132, FLX-CRM 133, FLX-143

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

1.1 Product identifier

| | |
|-----------------------------|-------------------------------------------------|
| Trade name | <u>FLX-CRM 132, FLX-CRM 133, FLX-143</u> |
| Registration number (REACH) | Not relevant (mixture) |
| CAS number | not relevant (mixture) |

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

| | |
|--------------------------|----------|
| Relevant identified uses | Catalyst |
|--------------------------|----------|

1.3 Details of the supplier of the safety data sheet

| | |
|------------------------|--------------------------------------------------------------|
| FLUXANA® GmbH & Co. KG | Telephone: +49 (0) 2821 - 48011-10 |
| Borschelstraße 3 | Telefax: +49 (0) 2821 - 48011-99 |
| D-47551 Bedburg-Hau | e-mail: info@fluxana.de |
| Germany | Website: www.fluxana.de |

1.4 Emergency telephone number

As above or nearest toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Not required.

Precautionary statements

P260 Do not breathe dust.

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture).

3.2 Mixtures

Description of the mixture

| Hazardous ingredients | | | | | |
|---------------------------------------|-----------------------------------------------|-------|----------------------------|------------|-------|
| Name of substance | Identifier | Wt% | Classification acc. to GHS | Pictograms | Notes |
| Silicic acid, aluminum magnesium salt | CAS No 1327-43-1 EC No 215-478-8 | > 90 | - | - | - |
| platinum | CAS No 7440-06-4 EC No 231-116-1 | < 0.5 | - | - | IOELV |
| rhodium | CAS No 7440-16-6 EC No 231-125-0 | < 0.1 | - | - | - |
| palladium | CAS No 7440-05-3 EC No 231-115-6 | < 0.6 | - | - | - |

Notes

IOELV: Substance with a community indicative occupational exposure limit value

| Name of substance | Specific Conc. Limits | M-Factors | ATE | Exposure route |
|-------------------|-----------------------|--------------------------------|-----|----------------|
| palladium | - | M-factor (acute) = 100.0 | - | - |

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Remove contact lenses, if present and easy to do. Continue rinsing.

Following ingestion

Rinse mouth immediately and drink plenty of water.
Get medical advice/attention if you feel unwell.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

These information are not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Co-ordinate firefighting measures to the fire surroundings.

Suitable extinguishing media

water, foam, alcohol resistant foam, fire extinguishing powder

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Co-ordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

wear self-contained breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Ventilate affected area.

Do not breathe dust.

Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.

Collect spillage.

Other information relating to spills and releases

Place in appropriate containers for disposal.

Ventilate affected area.

6.4 Reference to other sections

Personal protective equipment: see section 8.

Incompatible materials: see section 10.

Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provision of sufficient ventilation.

Do not breathe dust.

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Specific notes/details

Dust deposits may accumulate on all deposition surfaces in a technical room.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Wash hands after use.

Preventive skin protection (barrier creams/ointments) is recommended.

Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Not dust explosion capable.

Flammability hazards

None.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

weather conditions

Consideration of other advice

Keep away from food, drink and animal feeding stuffs.

Ventilation requirements

Provision of sufficient ventilation.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| Occupational exposure limit values (Workplace Exposure Limits) | | | | | | | | | |
|----------------------------------------------------------------|---------------|-----------|------------|-----------|-------------|------------|--------------|----------|------------|
| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m³] | STEL [ppm] | STEL [mg/m³] | Notation | Source |
| EU | platinum | 7440-06-4 | IOELV | - | 1 | - | - | - | 91/322/EEC |
| GB | dust | - | WEL | - | 10 | - | - | i | EH40/2005 |
| GB | dust | - | WEL | - | 4 | - | - | r | EH40/2005 |
| GB | platinum | 7440-06-4 | WEL | - | 5 | - | - | - | EH40/2005 |

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| Occupational exposure limit values (Workplace Exposure Limits) | | | | | | | | | |
|----------------------------------------------------------------|---------------|-----------|------------|-----------|--------------------------|------------|---------------------------|----------|-----------|
| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m ³] | STEL [ppm] | STEL [mg/m ³] | Notation | Source |
| GB | rhodium | 7440-16-6 | WEL | - | 0.1 | - | 0.3 | df | EH40/2005 |

Notation

df as dust and fumes

i inhalable fraction

r respirable fraction

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

| Relevant DNELs of components of the mixture | | | | | | |
|---------------------------------------------|-----------|----------|---------------------|------------------------------------|-------------------|----------------------------|
| Name of substance | CAS No | Endpoint | Threshold level | Protection goal, route of exposure | Used in | Exposure time |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | DNEL | 3 mg/m ³ | human, inhalatory | worker (industry) | chronic - local effects |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | DNEL | 3.05 mg/kg bw/day | human, dermal | worker (industry) | chronic - systemic effects |

| Relevant PNECs of components of the mixture | | | | |
|---------------------------------------------|-----------|----------|-----------------|---------------------------|
| Name of substance | CAS No | Endpoint | Threshold level | Environmental compartment |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | PNEC | 0.82 mg/l | freshwater |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | PNEC | 0.082 mg/l | marine water |

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

| Protective gloves | | |
|------------------------|------------------------|------------------------------------------|
| Material | Material thickness | Breakthrough times of the glove material |
| data are not available | data are not available | data are not available |

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

In the case of wanting to use the gloves again, clean them before taking off and air them well.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

Particle filter device (DIN EN 143).

Environmental exposure controls

Use appropriate container to avoid environmental contamination.

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|-----------------------------------------------------------------|---------------------------|
| Physical state | solid (powder) |
| Colour | grey |
| Odour | odourless |
| Melting point/freezing point | >1,000 °C |
| Boiling point or initial boiling point and boiling range | not determined |
| Flammability | non-combustible |
| Lower and upper explosion limit | not determined |
| Flash point | not applicable |
| Auto-ignition temperature | not applicable (solid) |
| Decomposition temperature | not relevant |
| pH (value) | not applicable |
| Viscosity | not relevant (solid) |
| Solubility(ies) | |

| | |
|-----------------------------------------------------------|----------------------------------------------------------------|
| Water solubility | insoluble |
| Partition coefficient n-octanol/water (log value) | not applicable |
| Vapour pressure | not determined |
| Density and/or relative density | |
| Density | not determined |
| Relative vapour density | information on this property is not available |
| Particle characteristics | no data available |
| 9.2 Other information | |
| Information with regard to physical hazard classes | hazard classes acc. to GHS (physical hazards): not relevant |
| Other safety characteristics | there is no additional information |

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

hydrofluoric acid, peroxides, for example hydrogen peroxide

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Test data are not available for the complete mixture.

Classification procedure

If not otherwise specified the classification is based on:

Ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity of components of the mixture

| Name of substance | CAS No | Exposure route | End-point | Value | Species | Method | Source |
|---------------------------------------|-----------|----------------|-----------|--------------|-------------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Silicic acid, aluminum magnesium salt | 1327-43-1 | oral | LD50 | >2,000 mg/kg | rat, female | OECD Guideline 423 | ECHA |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | dermal | LD50 | >5,000 mg/kg | rabbit | OECD Guideline 402 | ECHA |
| platinum | 7440-06-4 | oral | LD50 | 5,250 mg/kg | rat | - | NATWAY Naturwissenschaften. (Springer-Verlag, Heidelberg Platz 3, D-1000 Berlin 33, Fed. Rep. Ger.) V.1- 1913- Volume(issue)/page/year: 42,75,1955 |
| palladium | 7440-05-3 | oral | LD50 | >4,900 mg/kg | rat | - | ECHA |

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Skin sensitisation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitisation

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

If inhaled:

cough, pain, choking, and breathing difficulties, inhalation of dust may cause respiratory irritation

11.2 Information on other hazards

There is no additional information.

Endocrine disrupting properties

None of the ingredients are listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Test data are not available for the complete mixture.

Aquatic toxicity (acute) of components of the mixture

| Name of substance | CAS No | Endpoint | Exposure time | Value | Species | Method | Source |
|---------------------------------------|-----------|----------|---------------|--------------|-----------------------------------|--------------------|--------|
| Silicic acid, aluminum magnesium salt | 1327-43-1 | EC50 | 48 h | >10,000 mg/l | daphnia magna | OECD Guideline 202 | ECHA |
| Silicic acid, aluminum magnesium salt | 1327-43-1 | ErC50 | 72 h | 2,500 mg/l | algae (Desmod-esmus sub-spicatus) | OECD Guideline 201 | ECHA |

Aquatic toxicity (chronic)

Test data are not available for the complete mixture.

Aquatic toxicity (chronic) of components of the mixture

| Name of substance | CAS No | Endpoint | Exposure time | Value | Species | Method | Source |
|---------------------------------------|-----------|----------|---------------|------------|---------------|--------------------|--------|
| Silicic acid, aluminum magnesium salt | 1327-43-1 | NOEC | 21 d | 1,000 mg/l | daphnia magna | OECD Guideline 211 | ECHA |

12.2 Persistence and degradability

Biodegradation

No data available.

Persistence

No data available.

12.3 Bioaccumulative potential

Test data are not available for the complete mixture.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

None of the ingredients are listed.

12.7 Other adverse effects

Data are not available.

Remarks

Wassergefährdungsklasse, WGK (water hazard class): 1

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Completely emptied packages can be recycled.

Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

| | | |
|------|---------------------------------------------------------|--------------|
| 14.1 | UN number or ID number | not assigned |
| 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 | - |
| 14.7 | Maritime transport in bulk according to IMO instruments | - |

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

None of the ingredients are listed.

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

None of the ingredients are listed.

Seveso Directive

Not assigned.

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

None of the ingredients are listed.

Regulation on the marketing and use of explosives precursors

None of the ingredients are listed.

Regulation on substances that deplete the ozone layer (ODS)

None of the ingredients are listed.

Regulation concerning the export and import of hazardous chemicals (PIC)

None of the ingredients are listed.

Regulation on persistent organic pollutants (POP)

None of the ingredients are listed.

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

| Section | Former entry (text/value) | Actual entry (text/value) |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.3 | Details of the supplier of the safety data sheet: FLUXANA® GmbH & Co. KG Borschelstr. 3 D-47551 Bedburg-Hau Germany Telephone: ++49 (0) 2821 - 997 32-0 Telefax: ++49 (0) 2821 - 997 32-29 e-Mail: info@fluxana.de Website: http://www.fluxana.de | Details of the supplier of the safety data sheet: FLUXANA® GmbH & Co. KG Borschelstraße 3 D-47551 Bedburg-Hau Germany Telephone: +49 (0) 2821 - 48011-10 Telefax: +49 (0) 2821 - 48011-99 e-mail: info@fluxana.de Website: www.fluxana.de |
| 2.3 | - | Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| 3.2 | - | Hazardous ingredients: change in the listing (table) |
| 3.2 | - | Hazardous ingredients: change in the listing (table) |
| 8.1 | - | Relevant DNELs of components of the mixture: change in the listing (table) |
| 8.1 | - | Relevant PNECs of components of the mixture: change in the listing (table) |
| 8.2 | - | Hand protection: change in the listing (table) |
| 8.2 | - | Protective gloves: change in the listing (table) |

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| Section | Former entry (text/value) | Actual entry (text/value) |
|---------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| 8.2 | Respiratory protection: Particulate filter device (EN 143). | Respiratory protection: In case of inadequate ventilation wear respiratory protection. Particle filter device (DIN EN 143). |
| 14.1 | UN number: not subject to transport regulations | UN number or ID number: not assigned |
| 14.3 | Class: - | - |
| 14.6 | Special precautions for user: There is no additional information. | Special precautions for user: - |
| 14.7 | Transport in bulk according to Annex II of MAR-POL and the IBC Code: The cargo is not intended to be carried in bulk. | Maritime transport in bulk according to IMO instruments: - |
| 14.7 | Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN): Not subject to ADR, RID and ADN. | - |
| 14.7 | International Maritime Dangerous Goods Code (IMDG): Not subject to IMDG. | - |
| 14.7 | International Civil Aviation Organization (ICAO-IATA/DGR): Not subject to ICAO-IATA. | - |
| 15.1 | - | Seveso Directive: Not assigned. |

Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 91/322/EEC | Commission Directive on establishing indicative limit values by implementing Council Directive 80/1107/EEC |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ATE | Acute Toxicity Estimate |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| DNEL | Derived No-Effect Level |

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| Abbr. | Descriptions of used abbreviations |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EC50 | Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EH40/2005 | EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| ErC50 | ≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| IMDG | International Maritime Dangerous Goods Code |
| index No | The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 |
| IOELV | Indicative occupational exposure limit value |
| LD50 | Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval |
| M-factor | Means a multiplying factor. It is applied to the concentration of a substance classified as hazardous to the aquatic environment acute category 1 or chronic category 1, and is used to derive by the summation method the classification of a mixture in which the substance is present |
| NLP | No-Longer Polymer |
| NOEC | No Observed Effect Concentration |
| PBT | Persistent, Bioaccumulative and Toxic |
| PNEC | Predicted No-Effect Concentration |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |
| STEL | Short-term exposure limit |
| SVHC | Substance of Very High Concern |
| TWA | Time-weighted average |
| vPvB | Very Persistent and very Bioaccumulative |
| WEL | Workplace exposure limit |

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH).

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties.

Health hazards.

Environmental hazards.

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.

This SDS has been compiled and is solely intended for this product.