

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

1. **Section 1: Identification of the substance or mixture (product) and of the company**

1.1 **Product identifier:**

Name on the label / trade name:

Thermex CB FF

Other names:

Fluorine-free exothermic/insulating break cores and feeder systems
Cold-box bonded molded part

Note:

The mixture (product) is not subject to registration in accordance with REACH Regulation, Article 2(7).

1.2 **Relevant identified uses of the substance or mixture (product) and uses advised against:**

1.2.1 **Identified uses:**

The product (article) is intended for professional users.
Auxiliary agent for the foundry industry, use in the form of finished products.

1.2.2 **Uses advised against:**

Uses outside the identified uses:
No applications in the private sphere.

1.3 **Details of the supplier:**

Supplier (manufacturer/user/distributor):

For Germany / EU domestic:

GTP Schäfer GmbH
Benzstraße 15
41515 Grevenbroich
Germany

Email (expert):

info@gtp-schaefer.de

Contact point for information:

GTP Schäfer GmbH
Benzstraße 15
41515 Grevenbroich
Germany
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Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Potassium nitrate	7757-79-1	231-818-8	n.a.	01-2119488-224-35	≤ 15	Caution	Oxidizing Solid 3	H272	GHS03	210,220, 280, 370+378, 501	Located in bound form
Phenolic resin solution	N/A	N/A	N/A	N/A	≤ 5	Caution	Eye Irrit. 2; STOT (Single Resp. Expo.) 3	H319 H335	GHS07 EUH208	261,280, 304+340+312, 337+313, 403+233, 501	Located in bound form
Isocyanate preparation	N/A	N/A	N/A	N/A	≤ 5	Hazard	Skin Irrit. 2; Skin Sens. 1; Eye Irrit. 2; Acute Tox. (inhal.) 4; Resp. Sens. 1; STOT (Single Resp. Expo.) 3; STOT (Resp. Expo.) 2; Carc. 2	H315, H317 H319 H332, H334 H335 H351, H373	GHS07 GHS08 EUH204	201,260, 264,280, 304+340+312, 308+313	Located in bound form
Magnesium powder	7439-95-4	231-104-6	012-002-00-9	01-2119537-203-49	≤ 8	Hazard	Flam. Solid 1; Self Heat 2; Water React. Flam. Gas 2	H228 H252 H261	GHS02	210, 223, 280, 302+335+334, 370+378, 402+404	Located in bound form

Non-hazardous ingredients:

Chemical name	CAS No.:	EC No.:	INDEX No.:	REACH Reg. No.:	Content (%)	Classification according to Regulation (EC) 1272/2008			Labeling Pictogram	Safety instructions P statements	Remarks
						Signal words	Category	Hazard statements H statements			
Iron(III) oxide	1309-37-1	215-168-2	n.a.	01-2119457-614-35	≤ 8	N/A	N/A	N/A	N/A	N/A	Located in bound form
Hollow spheres (ceramic)	93924-19-7	300-212-6	N/A	01-2119563-688-21	50-60	N/A	N/A	N/A	N/A	N/A	Available in bound form
Fireclay (calcined kaolinite)	92704-41	296-473-8	N/A	01-2119527-779-22	≤ 20	N/A	N/A	N/A	N/A	N/A	Available in bound form

N/A = no information available

3.3 Note:

The abbreviations not written out in full in this section are listed in Chapter 16, as are safety instructions for the components used.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU)
2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

4. **Section 4: First aid measures:**

4.1 **Description of first aid measures, general information:**

Even if the product (article) is not classified as hazardous, first aid and medical treatment may be necessary in the event of accidents (e.g., ingestion) and even if poisoning is suspected.

After inhalation:

After inhalation of thermal decomposition products (e.g., carbon monoxide/dioxide, nitrous gases, ammonia, hydrogen cyanide

hydrogen, hydrocarbons, magnesium oxide), move the affected person to fresh air and keep them calm.

In case of respiratory irritation/difficulty breathing, seek medical attention immediately.

After skin contact:

In case of skin contact, wash thoroughly with plenty of soap and water.

If skin reactions, redness, or pain occur, seek medical attention.

After eye contact:

In case of contact with eyes (dust/thermal decomposition products), immediately rinse with running water for 10 to 15 minutes with eyelids open and consult an ophthalmologist. Contact lens wearers should remove contact lenses immediately and rinse eyes.

If eye irritation occurs, consult an ophthalmologist.

After swallowing:

If swallowed or if large amounts of dust are inhaled, drink immediately. Do not induce vomiting.

After swallowing, rinse mouth with plenty of water (only if the person is conscious) and seek medical attention immediately.

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Self-protection for the first responder:

When rescuing from the danger zone: Ensure your own safety!

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

4.2 Most important acute and delayed symptoms and effects:

Symptoms:

After inhaling dust:
No acute symptoms to be expected.

After inhalation of thermal decomposition products:

Nitrogen oxides: Depending on concentration, rapid narcotic effect up to symptoms of oxygen deficiency. The development of pneumonia (with or without preceding pulmonary edema) may occur as a late consequence of acute poisoning even after 10-30 days. Damage to blood count / neurological damage.

Hydrogen cyanide, prussic acid: Mucous membrane irritation, burning sensation on the tongue, metallic-scratchy taste in the mouth and

throat; gradual to sudden onset of systemic effects depending on concentration

Formaldehyde: irritation of the nasopharyngeal mucous membranes (burning, sneezing, runny nose), possibly asthma attacks

Phenol: irritation of the nose and throat

Ammonia: Coughing, breathing difficulties, nausea, vomiting, later respiratory tract inflammation

Magnesium: irritation of the respiratory tract, metal fume fever

After skin contact:

Hydrogen cyanide, prussic acid: initial irritation, followed by redness

Formaldehyde: concentration/time-dependent irritation to chemical burns, allergic skin reactions

Phenol: reddening/whitening of the contact area, later necrosis

Ammonia: irritation to chemical burns

After eye contact:

Hydrogen cyanide, prussic acid: redness

Formaldehyde: mild, reversible irritation to permanent corneal lesion

Phenol: corneal opacity

Ammonia: Tearing, burning/stinging pain in the eye

Magnesium: Mucous membrane irritation

After ingestion:

Hydrogen cyanide, prussic acid: mucous membrane irritation

Formaldehyde: depending on concentration, irritation to chemical burns of the mucous membranes with abdominal pain, retching, cyanosis
nose

Phenol: Burning and chemical burns of the mucous membranes, stomach pain, nausea, diarrhea

Potassium nitrate: Gastrointestinal disorders, reduction in heart rate, drop in blood pressure, relaxation of blood vessel muscles

Magnesium: Nausea and vomiting, diarrhea

4.3 Indications for immediate medical attention or special treatment:

Information on treatment by a physician can be found in the following literature sources, among others:
IFA-DGUV-Gestis substance database

Treat symptomatically.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

5. Section 5: Firefighting measures

5. **Extinguishing media:** **Suitable extinguishing media:**

Sand, dry extinguishing agents

Cover with the aforementioned extinguishing agents and allow to burn out in a controlled manner, as far as this is possible without risk.

Adapt extinguishing measures to the surroundings.

Unsuitable extinguishing media:

Water: when extinguishing with water, there is a risk of hydrogen formation due to violent chemical reactions / high combustion temperature

Extinguishing gases: decomposition process continues auto-oxidatively

5.2 **Special hazards arising from the substance or mixture:**

Decomposition processes continue even under water.

Strongly exothermic decomposition.

Heating or thermal decomposition may release toxic gases or vapors.

See also section 2.2

5.3 **Firefighting instructions:**

Use suitable respiratory protection (filter types A, B, K, NO-P2, or combination filter ABEK-P2).

If necessary, wear self-contained breathing apparatus.

Wear suitable personal protective equipment when fighting fires.

Collect contaminated extinguishing water separately. Do not allow to enter drains, soil, or waterways.

Cool surrounding areas if possible.

Fire class:

Not applicable

6. Section 6: Accidental release measures:

6.1 **Personal precautions:**

Avoid contact with eyes, inhalation, and ingestion of dust; dust mask recommended.

Avoid dust formation; vacuum up dust without stirring it up.

Keep away from sources of ignition.

6.2 **Environmental precautions:**

Do not allow product or product residues to enter the sewage system, waterways, or soil.

Ensure that waste is collected and stored safely in closed containers.

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

Do not rinse away with water or aqueous cleaning agents, as hydrogen may be generated.

Collect mechanically (avoid dust formation) and place in suitable containers for disposal. Use suction systems for cleaning.

Dust may cause a slipping hazard.

Treat the collected material as described in the Disposal section.

6.4 **Additional information:**

Please observe the protective measures in sections 7, 8, and 13.

7 Section 7: Handling and storage:

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

7.1 Precautions for safe handling:

Observe product information/technical data sheet.
Remove packaging immediately before use.

Measures to prevent fires:

Protect from excessive heat.
Keep away from sources of ignition - No smoking, no open flames
Do not store in the immediate vicinity of casting lines or melting and furnace facilities.
Avoid dust deposits / remove dust deposits regularly.
Observe standard preventive fire protection measures.

Measures to prevent aerosol and dust formation:

Dust should be extracted immediately at the point of origin; handle the product in such a way as to avoid abrasion and dust formation (e.g., no pouring).
Use closed devices where possible.
Provide exhaust air purification if necessary.

Environmental protection measures:

Effectively extract any thermal decomposition products and, if necessary, feed them into an exhaust air purification system.
Dispose of product residues in accordance with legal regulations.

General hygiene information for the workplace:

Do not eat, drink, smoke, or sniff at the workplace.
Wash hands and/or face before breaks and at the end of work.
Keep away from food, beverages, and animal feed.
Do not inhale dust or thermal decomposition products.
Only use the product in quantities that meet operational requirements.

7.2 Conditions for safe storage, taking into account incompatibilities:

Technical measures and storage conditions:

Keep away from sources of ignition - No smoking, no open flames
Do not carry out hot work.
Store in tightly closed containers in a cool, dry place.

Packaging materials:

Store/keep only in the original container (cardboard trays).

Requirements for storage rooms and containers:

No special requirements; do not store outdoors; store in a dry place.

Storage compatibility information:

Storage class: 11 – combustible solids (according to TRGS 509 / 510) (recommended)

Do not store together with:

Food and animal feed
Explosive substances (storage class 1)
Strongly oxidizing substances (storage class 5.1A)
Infectious substances (storage class 6.2)
Radioactive substances (storage class 7)
Do not store together with strong acids and alkalis. Store separately from oxidizing agents and reducing agents.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Observe restrictions and requirements for joint storage in accordance with TRGS 509 / TRGS 510 with:

Gases (storage class 2A)
Flammable liquids (storage class 3)
Other explosive substances (storage class 4.1A)
Pyrophoric or self-heating substances (storage class 4.2)
Substances that form flammable gases in contact with water (storage class 4.3)
Oxidizing substances (storage class 5.1 B)
Ammonium nitrate and substances containing ammonium nitrate (storage class 5.1 C)
Organic peroxides and self-reactive substances (storage class 5.2)
Flammable acutely toxic substances (storage class 6.1A)
Non-flammable acutely toxic substances (storage class 6.1 B)

Further information on storage conditions:

Storage temperature (°C): +5 to +30 °C

Relative humidity (%): Store in a dry place / protect from moisture

Storage stability: No information available.

Maximum storage period: The maximum recommended storage period is 1 year. Experience has shown that the product can also be used beyond the specified maximum storage period. However, the guaranteed product properties cannot be guaranteed after the maximum storage period has expired.

7.3 Specific end uses:

Recommendation: Commercial use only. Not for private use.

8. Section 8: Exposure controls/personal protection:

8.1 Exposure limits:

Components with workplace exposure limits or biological limits to be monitored:

Occupational exposure limits:

Based on thermal decomposition products / dust emissions:

Air limits:

Limit value type (country of origin)	Occupational substance	EC No.	CAS No.	Workplace limit value		Recommended monitoring procedure	Peak limitation	Source
				inhalable Aerosol fraction	Alveolar fraction			
Germany	Dust (for dust with a density of 1 g/cm ³)	N/A	N/A	4 mg/m	0.3 mg/m ³	N/A	No exceedance of twice the general dust limit value	DFG
Germany	Aluminum	231-072-3	7429-90-5	0.5 mg/m	0.05 mg/m ³	N/A	Exceedance factor 8 for 15 min., 4 times per shift, interval 1 h	DFG

Limit value type (count)	Working substance	EC No.	CAS No.	Workplace limit value		Recommended monitoring procedure	Peak limitation	Source
				Long-term	Short-term			

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

ry of origin)								
Germa ny	Dinitrogen (nitrous Trose gases)	233- 032-0	10024- 97-2	180 mg/m ³	360 mg/m ³	N/A	2-fold exceedance in 15 min, max. 4 times/shift, interval 1 h	DFG
Germa ny	Cyan hydrogen (hydrocy nic acid)	200- 821-6	74-90-8	2.1 mg/m ³	4.2 mg/m ³	N/A	2-fold exceedance in 15 min, max. 4 times/shift, interval 1 h	DFG
Germa ny	Formaldeh yde aldehyde	200- 001-8	50-00-0	0.37 mg/m	0.74 mg/m ³	N/A	2-fold exceedance in 15 min, max. 4 times / shift, interval 1 h	DFG
Germa ny	Ammonia	231- 635-3	7664-41	14 mg/m	28 mg/m ³	N/A	2 times the limit exceeded in 15 min, max. 4 times/shift, interval 1 h	DFG
Germa ny	Carbon monoxide	211- 128-3	630-0	35 mg/m ³	70 mg/m ³	N/A	2-fold exceedance in 15 min, max. 4 times/shift, interval 1 h	DFG
Germa ny	Carbon dioxide	204- 696-9	124-38- 9	9,100 mg/m ³	18,200 mg/m ³	N/A	2-fold exceedance in 15 min, max. 4 times/shift, interval 1 h	DFG
No sufficient product-related data available.								

N/A = not available

When burning products made from Thermex CB FF, the formation of nitrous gases, ammonia, formaldehyde aldehyde, and hydrogen cyanide. Whether the occupational exposure limits are exceeded when using products made from Thermex CB FF depends heavily on the conditions. Verification of compliance with occupational exposure limits is recommended at least during initial use.

Biological limits:

Limit value type (country of origin)	Working substance	EC No.	CAS No.	Parameter	Limit value	Test material	Source	Comment
Germany	Phenol	203-632- 7	108-95-2	Phenol (after hydrolysis)	200 mg/l	Urine	DFG	at the end of shift
Germany	Aluminum	231-072- 3	7429-90-5	Aluminum	50 µg/g Creatinine	Urine	DFG	at end of shift (long- term exposure)
Germany	Carbon monoxide	211- 128-3	630-08-0	CO-Hb	5	Blood	DFG	at the end of shift
No sufficient product-related data available.								

DNEL and PNEC values:

DNEL-Worker

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Route of exposure	Duration of exposure	Endpoint effect	Value	Comment
Inhalation / systemic and local	Long-term	Repeated exposure	3.72 mg/m ³	Based on aluminum grit
Inhalation Systemic and local	Short-term/long-term	Short-term/repeated exposure	3 mg/m	Based on hollow spheres (ceramic)
Inhalation Local	Long-term	Repeated exposure	0.113 mg/m	Based on hollow spheres (ceramic)
Inhalation systemic/local	Short-term/long-term	Short-term/repeated exposure	3 mg/m	Based on fireclay
No sufficient product-related data available.				

DNEL user/consumer				
Route of exposure	Duration of exposure	Endpoint effect	Value	Comment
Inhalation / systemic	Long-term	Repeated exposure	7.9 mg/kg bw/day	Based on aluminum grits
No adequate product-related data available.				

PNEC			
Protection target	Extrapolation factor	Value	Comment
Freshwater	2	20.2 mg/L	Based on potassium nitrate
Seawater	2	20.1 mg/L	Based on potassium nitrate
Sewage treatment plant	10	21.4 mg/L	Based on potassium nitrate
Freshwater	50	2 mg/L	Based on hollow spheres (ceramic)
Seawater	500	0.2 mg/L	Based on hollow spheres (ceramic)
Sewage treatment plant	10	100 mg/L	Based on hollow spheres (ceramic)
Soil organisms	1000	333.3 mg/kg soil dw	Based on hollow spheres (ceramic)
Freshwater	10	4.1 mg/L	Based on fireclay
Seawater	100	0.41 mg/L	Based on fireclay
Sewage treatment plant	1	1,400 mg/L	Based on fireclay
No sufficient product-related data available.			

Result

Potassium nitrate is not considered to pose a risk to the environment.

8.2 Exposure controls:

8.2.1 Limitation and monitoring of exposure at the workplace:

Product-related measures to prevent exposure:

Only intended, identified use permitted.

Instructional measures to prevent exposure:

Safety instructions for handling are listed in Chapter 16.

Organizational measures to prevent exposure:

Only permitted for intended, identified use.

It must be determined whether the occupational exposure limits are being complied with. Reference is made to European Directive EN 689 on the assessment of exposure to chemical substances.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Technical measures to prevent exposure:

See Section 7. No further measures are necessary.

Technical measures and the use of appropriate working methods take precedence over the use of personal protective equipment.

Personal protective equipment:

Respiratory protection: Personal respiratory protection is not normally necessary.

Respiratory protection is required in the following cases:

If technical extraction or ventilation measures are not possible or insufficient, respiratory protection must be worn (thermal decomposition products/dust) (fine dust mask (FFP 2)).
Exceeding the respective occupational exposure limit for thermal decomposition products / dust.

During food production:

Filter device with filter or blower filter device type: P2 or FFP2

When used as intended:

Filter device with filter or blower filter device type:

Filter types A, B, K, NO-P2 or combination filter ABEK-P2 or fan-assisted respiratory protection device (at least TH2P).

Self-contained breathing apparatus:

Use at concentrations above the application limit of filter devices, at oxygen contents below 17 vol% or in unclear conditions.

The wearing time limits according to GefStoffV in conjunction with the rules for the use of respiratory protection devices (BGR 190) must be observed.

Hand protection: Hand protection is not normally necessary; depending on the other substances used, the wearing of gloves is recommended. The use of water-insoluble skin protection agents is recommended.

For frequent hand contact:

Gloves for protection against mechanical hazards in accordance with DIN EN 388

The wearing time limits according to GefStoffV in conjunction with the rules for the use of protective gloves (BGR 195) must be observed.

Eye protection: In case of dust accumulation: Dust goggles with side protection (in accordance with EN 166).

Body protection: Not required. Normal long-sleeved work clothing is sufficient. Recommendation: Protective clothing according to EN 340.

Hygiene: After handling the mixture, hands, forearms, and face should be washed, especially before breaks or at the end of work activities.

8.2.2 Limitation and monitoring of environmental exposure:

Product-related measures to prevent exposure:

No special measures required.

Instructional measures to prevent exposure:

Only handle the product in accordance with its intended, identified use.

Organizational measures to prevent exposure:

Low-dust handling.

Use product only in the quantities required.

Technical measures to prevent exposure:

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 Version: EN 2.0
Print date: February 13, 2026

Effective extraction of dust/thermal decomposition products at source.

9. Section 9: Physical and chemical properties:

9.1 Information on basic physical and chemical properties:

	Value	Method	Comment
Physical state	Solid		
Color	gray		
Odor	Odorless		
pH value (20°C):	approx. 7	DIN 19260	Measurement in aqueous suspension
Melting point/range (°C):	Not applicable	No information available.	Not applicable, as decomposition occurs
Boiling point/range (°C):	Not applicable		
Flash point (°C):	Not applicable		
Ignition temperature (°C):	250 ^{a)} or 1,400 ^{b)}	DIN 51794	Product is not self-igniting
Vapor pressure:	Not applicable		Product made from non-volatile inorganic and highly molecular organic solids
Density (g/cm³):	650 - 1,000	DIN 51757	
Bulk density (g/cm³):	Not determined		
Water solubility (20°C in g/l):	practically insoluble	No information available.	Solubility of inorganic components to be expected
Distribution coefficient n-octanol/water (log Pow):	Not applicable		
Viscosity, dynamic (mPa*s):	Not applicable		Not applicable, as solid
Dust explosion capability:	Not applicable		Product is not dust explosive
Explosion limits	Not applicable		
Lower:			
Upper:			

a) with 1 hour temperature exposure b) with 20–50 second temperature exposure

9.2 Other information:

No additional data

10 Section 10: Stability and reactivity:

10.1 Conditions to avoid:

When heated/exposed to heat:

Risk of ignition

The product is not dust explosive in the form in which it is delivered; however, any fine dust that may be produced has increased flammability.

10.2 Substances to avoid:

Acids and oxidizing and reducing agents. See also section 7.2.4.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 Version: EN 2.0
Print date: February 13, 2026

10.3 Hazardous decomposition products:

Nitrous gases (nitrogen oxides)
Hydrogen cyanide (prussic acid)
Hydrogen
Carbon monoxide / carbon dioxide
Soot
Phenol
Formaldehyde
Ammonia

Exposure limits for individual substances are listed in Chapter 8.

11. Section 11: Toxicological information:

11. Acute toxicity:

	Effective dose	Species	Evaluation	Method	Comment
Acute oral toxicity	LD ₅₀ /14d: >15,900 mg/kg	Rat		OECD 401	Based on aluminum grit
Acute oral toxicity	LD ₅₀ /14d: >2,000 mg/kg	Rat	No effects	OECD 425	Based on potassium nitrate
Acute oral toxicity	LD ₅₀ /14d: >5,000 mg/kg	Rat	No effects	EU B.1	Based on iron trioxide
Acute oral toxicity	LD ₅₀ : > 2,000 mg/kg	n.a.		Calculation method	Based on phenolic resin solution
Acute dermal toxicity	LD ₅₀ /24h: > 5,000 mg/kg	Rat	No effects	OECD 402	Based on potassium nitrate
Acute dermal toxicity	LD ₅₀ : > 2,000 mg/kg	n.a.		Calculation method	Based on phenolic resin solution
Acute inhalation toxicity:	LC ₅₀ /4h: > 888 mg/m ³	Rat		OECD 403	Based on aluminum grit
Acute inhalation toxicity:	LC ₅₀ /4h: > 0.527 mg/m ³	Rat	No effects	OECD 403	Based on potassium nitrate
Acute inhalation toxicity	LC ₅₀ /4h: 5.05 g/m ³	Rat	No effects	OECD 403	Based on Di-iron trioxide
Acute inhalation toxicity	LC ₅₀ /4h: > 20 g/m ³	n.a.		Calculation method	Based on phenolic resin solution
Acute inhalation toxicity	LC ₅₀ /4h: 1.54 g/m ³	N/A		Calculation method	Based on isocyanate preparation
Acute inhalation toxicity	LC ₅₀ /4h: >2.07 g/m ³	Rat		EPA OPP 81-3	Based on Fireclay

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 Version: EN 2.0
Print date: February 13, 2026

Mixture (product):

Oral toxicity:

No sufficient product-related data available that is relevant for classification.

Dermal toxicity:

Contact with dust causes irritation of the skin and mucous membranes.

Inhalation toxicity:

Inhalation of dust may cause irritation of the respiratory tract (nose and throat) and respiratory impairment.

Components that may contribute to *acute inhalation toxicity*:

- **Isocyanate preparation:** LD 50 (oral): ATE 1.5 mg/kg

The mixture is not classified as acute toxicity by inhalation.

Specific target organ toxicity (STOT) after single exposure:

Phenolic resin solution and isocyanate preparation may irritate the respiratory tract.

No sufficient product-related data relevant for classification available.

Specific symptoms in animal studies:

No sufficient product-related data available that is relevant for classification.

11.2 Corrosive/irritant effect on the skin:

	Duration of exposure	Species	Assessment	Method	Comment
Primary irritant effect on the skin	4 h	Rabbit	No irritation	OECD 404	Based on iron(III) oxide
Primary irritant effect on the skin	15 min	Model epidermis	No irritation	OECD 439	Based on potassium nitrate

Isocyanate preparation causes skin irritation and/or dermatitis.

Mixture (product):

No sufficient product-related data available for classification; contact with dust may cause mechanical irritation and injury.

11.3 Serious eye damage/irritation:

Eye irritation	24 h / 192 h	Rabbit	No irreversible damage	OECD 405	Based on iron(III) oxide
Eye irritation	24 h	Rabbit	No irreversible damage	OECD 405	Based on potassium nitrate

Phenolic resin solution causes severe eye irritation.

Isocyanate preparation causes severe eye irritation.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 Version: EN 2.0
Print date: February 13, 2026

Mixture (product):

Eye irritation:

No sufficient product-related data available; contact with dust may cause mechanical irritation and injuries.

11.4 Respiratory or skin sensitization:

Isocyanate preparation: May cause allergic reactions in sensitive individuals through skin contact or inhalation of aerosols or dust.

Mixture (product):

After inhalation:

No sufficient product-related data available that is relevant for classification.

Components that may contribute to *respiratory sensitization*:

- **Isocyanate preparation: The general limit values (GCL) must be observed: Category 1: 1%**

After skin contact:

No sufficient product-related data available for classification.

Ingredients that may contribute to *skin sensitization*:

- **Isocyanate preparation: The general limit values (GCL) must be observed: Category 1: 1%**

11.5 Toxicity after repeated exposure (subacute, subchronic, chronic):

Iron trioxide:

A 13-week test according to OECD 408 with rats showed no significant effects at a NOAEL of $\geq 1,000$ mg/kg bw/d.

Mixture (product):

Repeated inhalation of high amounts of dust may cause mucous membrane irritation and impairment of the respiratory tract, as well as coughing, sore throat, sneezing, and shortness of breath.

Otherwise, no sufficient product-related data relevant for classification are available.

Specific target organ toxicity (STOT) after repeated exposure:

Isocyanate preparation may cause organ damage (lungs) through prolonged or repeated inhalation.

No sufficient product-related data relevant for classification available.

11.6 CMR effects (carcinogenic, mutagenic, and toxic to reproduction):

Potassium nitrate:

Carcinogenicity:	No data available
In vitro mutagenicity:	Negative (mouse lymphoma test according to OECD 476 activated/non-activated)
In vivo mutagenicity:	No clear dose-response effects (rat)
Germ cell mutagenicity:	No chromosomal aberrations observed.
Reproductive toxicity:	A 53-day test according to OECD 422 with rats yielded a NOAEL of 1,500 mg/kg bw/d (no dose-response effects).

Isocyanate preparation:

Carcinogenicity:	Carcinogen, Category 2; determined to be carcinogenic and contribute to cancer risk based on epidemiological data. As a relevant ingredient, the general limit values (GCL) must be observed: Category 2: 1%.
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Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Iron trioxide:

Carcinogenicity: Carcinogenic, Category 3; substance data (tests with rats) provide evidence of a carcinogenic effect (lung tumors) without genotoxic effects being predominant.

Formaldehyde:

Carcinogenicity: Carcinogen: Category 4; substance with carcinogenic effects, in which genotoxic effects play no or only a minor role

Germ cell mutagenicity: Mutagen, Category 5; very low contribution to genetic risk

Phenol:

Carcinogenicity: Carcinogen, category 3; substance data provide evidence of a carcinogenic effect

Germ cell mutagenicity: Mutagen; Category 3B; suspected mutagenic effect in in vivo germ cells

Mixture (product):

Carcinogenicity: No sufficient product-related data available.

In vitro mutagenicity: No adequate product-related data available.

In vivo mutagenicity: No adequate product-related data available.

Germ cell mutagenicity: No adequate product-related data available.

Reproductive toxicity: No adequate product-related data available.

11.6 Practical experience / Aspiration hazard:

Classification-relevant observations: No data available regarding product handling.

Other observations: No data available regarding product handling.

11.7 Information on other hazards:

No observations/data available on endocrine-disrupting properties or blindness/phototoxicity when handling the product.

12. Section 12: Environmental information:

12. Ecotoxicity:

Aquatic toxicity	Effective dose	Exposure duration	Species	Method	Assessment	Remarks
Acute fish toxicity	LC ₀ : ≥ 10 g/l	96 h	Fish	OECD 203	No toxic effects	Based on iron(III) oxide
Acute invertebrate toxicity	LC ₅₀ : 496	96	Saltwater crab	N/A	Lethal effects	Based on Potassium nitrate
Acute daphnia toxicity	EC ₅₀ : ≥ 100 mg/l	48 h	Daphnia	OECD 202	No toxic effects	Based on iron trioxide
Algal toxicity	ErC ₅₀ : > 1,048 mg/l	10 d	Saltwater diatoms (growth)	N/A	No toxic effects	Based on potassium nitrate
Acute algal toxicity	NOEC: ≥ 20 mg/l	72 h	Algae	OECD 201	No toxic effects	Based on iron trioxide

Mixture (product):

No sufficient product-related data relevant for classification available. Due to the inert nature of the mixture (product), no harmful effects on the living and non-living environment are to be expected.

12.2 Persistence and degradability:

Iron(III) oxide:

Biological degradation test according to ISO 8192: EC₅₀/ 3 h: > 10 g/l (no significant impairment)

Mixture (product):

Due to the inert nature of the mixture (product composed of inorganic substances, not affected by degradation), no data are available on physical or photochemical elimination.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

12.3 Bioaccumulation potential:

Mixture:

Due to the inert nature of the mixture (product composed of inorganic substances), no data on bioaccumulation potential is available.

12.4 Mobility:

Known or expected distribution to environmental compartments:

Mixture (product):

No data available on the mixture (product) regarding surface tension, adsorption/desorption, or distribution in environmental compartments.

12.5 Result of the determination of PBT properties:

Neither the individual substances nor the mixture (product) meet the criteria for classification as PBT or vPvB.

12.6 Endocrine-disrupting properties:

Due to the inert nature of the mixture (product composed of inorganic substances), no data are available.

12.7 Other adverse effects:

No other harmful effects on ozone depletion and greenhouse effect potential or photochemical ozone formation are known.

12.8 Other information:

Separation of aqueous phase possible by filtration.

13 Section 13: Disposal considerations:

13. Disposal/waste (product):

Unused product:

Contact the manufacturer regarding recycling. Check the possibility of recycling.
Otherwise, dispose of in accordance with the German Closed Substance Cycle Waste Management Act (KrWG): non-hazardous waste in accordance with § 3 of the German Waste Catalog Ordinance (AVV).

Used product:

Disposal in accordance with the German Closed Substance Cycle Waste Management Act (KrWG).

13.2 EAK / AVV waste code:

Suggested list of waste codes/waste designations in accordance with AVV:

Unused product:

10 10 05* casting molds and sands containing dangerous substances prior to casting
10 10 06 Casting molds and sands prior to casting, except those covered by 10 10 05*

Spent product:

10 10 07* casting molds and sands containing dangerous substances after casting
10 10 08 Foundry molds and sands after casting, except those covered by 10 10 07*

13.3 Packaging:

Uncontaminated and completely emptied packaging can be recycled.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 Version: EN 2.0
Print date: February 13, 2026

14 Section 14: Transport information:

14.1 Transport hazard classes:

Land transport (ADR/RID):

Official designation: Not classified for this mode of transport.
Class:
Classification code:

Hazard label:
UN No.:
Packing group:

Water transport (ADN(R) / IMDG Code):

Official name: Not classified for this mode of transport.
Class:
Classification code:

Hazard label:
UN No.:
Packing group:

EmS:

Marine pollutant:

IMDG code: Product is not transported as bulk cargo.

Air transport (ICAO-TI / IATA-DGR):

Official name: Not classified for this mode of transport.
Class:
Classification code:

Hazard label:
UN No.:
Packing group:

14.2 Special precautions for the user:

No special precautions are required for transport or movement within or outside the company premises.

15 Section 15: Regulatory information:

15.1 EU regulations:

Substance safety assessment:

Risk assessments have been carried out and registration dossiers have been prepared for individual substances in this product have been prepared:

- Registration dossiers for aluminum, potassium nitrate, di-iron trioxide, and cenospheres (hollow ceramic spheres) by the European Chemicals Agency (ECHA).

Labeling:

Hazard symbols and hazard designation:

Hazardous components for labeling:

H statements:

P statements:

Special labeling:

Not applicable, as no labeling is required

Not applicable, as labeling is not required

Not applicable, as not subject to labeling requirements

Not applicable, as not subject to labeling requirements

Approval and/or restrictions on use:

Approvals:

No information

Restrictions on use:

No information

15.2 National regulations (Germany):

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

Information on employment restrictions:	The respective national regulations on the protection of young workers and expectant mothers must be observed.
Major Accidents Ordinance (12th BImSchV):	Not subject to 12th BImSchV.
Water hazard class:	WGK 1 = slightly hazardous to water (self-classification according to AwSV, Annex 1 not applicable as this is a product)
Technical Instructions on Air Quality Control (TA-Luft):	The respective emission limits must be observed: Ammonia: 30 mg/m ³ Nitrogen oxides: 350 mg/m ³ (as nitrogen dioxide) Total dust, including fine dust: 20 mg/m ³ Carbon monoxide: 150 mg/m ³ Formaldehyde: 20 mg/m ³ Hydrogen cyanide: 3 mg/m ³ Phenol: 50 mg/m ³ (as ammonia)
Other regulations, restrictions, and prohibitions:	TRGS 900 on limit values in the air at the workplace; TRGS 720 on hazards posed by explosive mixtures; DFG

16. **Section 16: Other information:**

16.1 **Wording of H and P statements:**

Full text of the H and P statements for the individual components of the mixture mentioned in Chapter 3, the mixture itself, and abbreviations of the labels for the individual substances mentioned in Chapter 2:

Hazard statements:

H228	Flammable solid
H252	May self-heat in large quantities; may catch fire.
H261	In contact with water, flammable gases are formed.
H272:	May intensify fire; oxidizing agent
H315:	Causes skin irritation
H317:	May cause allergic skin reactions
H319:	Causes serious eye irritation
H332:	Harmful if inhaled
H334:	May cause allergy, asthma-like symptoms, or breathing difficulties if inhaled
H335:	May irritate the respiratory tract
H351:	May cause cancer
H373:	May cause damage to organs through prolonged or repeated exposure

EUH204	Contains isocyanates. May cause allergic reactions.
EUH208	Contains: formaldehyde. May cause allergic reactions.

Safety instructions:

Prevention:

P201	Obtain special instructions before use
P210	Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
P220	Keep away from clothing, combustible materials, store away from them
P223	Avoid contact with water due to violent reaction and possible flash fire.
P231+232	Handle under inert gas. Protect from moisture.
P240	Ground container and filling equipment.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU)
2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

P241 Use explosion-proof electrical equipment/ventilation systems/lighting/etc.
P260 Do not breathe dust, fumes, gas, mist, vapor, or spray.
P264 Wash thoroughly after use.
P280 Wear protective gloves, protective clothing, eye protection, face protection

Reaction:

P302+335+334 If on skin: Brush off loose particles. Immerse in cold water/apply wet bandage. apply
wet bandage.
P304+340+312 If inhaled: Remove to fresh air and keep at rest in a position comfortable for breathing
and if you feel unwell, call a poison control center or doctor
P305+351+338 If in eyes: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
P308+313 If exposed or if you feel unwell: Get medical advice/attention.
P337+313 If eye irritation persists: Get medical advice/attention
P370+P378 In case of fire: Use for extinguishing: Special powder for metal fires

Storage:

P402+404 Store in a tightly closed container in a dry place.
P403+233 Store in a tightly closed container in a well-ventilated place

Disposal:

P501 Dispose of contents/container in accordance with local, regional, national,
international regulations.

Safety data sheet

in accordance with Regulation (EC) No. 1907/2006 and (EU) 2020/878



Trade name: Thermex CB FF
Revised on: February 13, 2026 **Version:** EN 2.0
Print date: February 13, 2026

16.2 Training

Instructions:

Employees must be regularly trained in accordance with legal requirements regarding the scope and associated hazards.

16.3 **Recommended restrictions on use:**

No private use.

16.4 **Further information:**

The information in this safety data sheet corresponds to our best knowledge at the time of printing. The information is intended to provide you with guidance on the safe handling of the mixture mentioned in this safety data sheet during storage, processing, transport, and disposal. The information is not transferable to other mixtures. If the mixture mentioned in this safety data sheet is mixed, blended, or processed with other materials, or subjected to processing, the information in this safety data sheet cannot be transferred to the new material produced in this way, unless expressly stated otherwise.

16.5 **Data sources:**

- 1.) Current safety data sheets for the ingredients
- 2.) IFA-DGUV (Institute for Occupational Safety and Health of the German Social Accident Insurance), GESTIS substance database
- 3.) DFG (German Research Foundation) - MAK and BAT values list 2025, Communications 61, <https://mak-dfg.publisso.de>
- 4.) ECHA/EU - REACH registration dossier Di-iron trioxide, as of 03.12.2025
- 5.) ECHA/EU - REACH registration dossier magnesium, as of 18.12.2025
- 5.) ECHA/EU - REACH registration dossier potassium nitrate, as of January 8, 2026
- 7.) ECHA/EU - REACH registration dossier for ashes (residues), cenospheres (hollow spheres), as of July 22, 2024
- 3.) ECHA/EU - REACH registration dossier for aluminum grit, as of January 14, 2026
- 9.) ECHA/EU - REACH registration dossier for calcined kaolinite (fireclay), as of August 8, 2025
- 10.) RIGOLETTO database "Catalogue of substances hazardous to water" Federal Environment Agency (UBA) in accordance with AwSV (Ordinance on Facilities for Handling Substances Hazardous to Water); Version 3.7.1 / 2026
- 11.) TA-Luft 2021
- 12.) TRGS 900 Technical Rules for Hazardous Substances – Occupational Exposure Limits; as of May 6, 2025
- 13.) TRGS 509 Technical Rules for Hazardous Substances – Storage of Liquid and Solid Hazardous Substances in Stationary Containers; Status: 03/26/2024
- 14.) TRGS 510 Technical Rules for Hazardous Substances – Storage of Hazardous Substances in Mobile Containers; Status: February 16, 2021