

SAFETY DATA SHEET

LANXESS
Energizing Chemistry

Folanx Ca29

56259272

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

1.1 Product identifier

Product name : Folanx Ca29
Hazardous ingredients : calcium formate

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

Suitable uses : fertiliser

1.3 Details of the supplier of the safety data sheet

Supplier : LANXESS Distribution GmbH, Katzbergstr. 1
D-40764 Langenfeld
Telephone: +49 2173 2033 0 Fax: +49 2173 2033 108
E-mail: info@lanxess-distribution.com

1.4 Emergency telephone number : +49 214 30 99300 (Sicherheitszentrale CHEMPARK Leverkusen)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Classification : Eye Dam. 1, H318

Classification according to Directive 1999/45/EC [DPD]

Classification : Xi; R41
Human health hazards : Risk of serious damage to eyes.

2.2 Label elements

Hazard pictograms :



Signal word : Danger
calcium formate

Hazard statements : H318 - Causes serious eye damage.
Additional warning phrases : Not applicable.

Precautionary statements

Prevention : Wear eye/face protection.
Response : IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Storage : Not applicable.
Disposal : Not applicable.

2.3 Other hazards

Other hazards which do not result in classification : None known.

SECTION 3: Composition/information on ingredients

Product definition (REACH) : Mixture

Product/ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
calcium formate	REACH #: 01-2119486476-24 EC: 208-863-7 CAS: 544-17-2	70 - 80	Xi; R41	Eye Dam. 1, H318	[1]
calcium chloride	EC: 233-140-8 CAS: 10043-52-4 Index: 017-013-00-2	14 - 18	Xi; R36	Eye Irrit. 2, H319	[1]
citric acid	EC: 201-069-1 CAS: 77-92-9	1 - 15	Xi; R36	Eye Irrit. 2, H319	[1]
			See Section 16 for the full text of the R-phrases declared above.	See Section 16 for the full text of the H statements declared above.	

Occupational exposure limits, if available, are listed in Section 8.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

SECTION 4: First aid measures

4.1 Description of first aid measures

- Inhalation** : Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

See Section 11 for more detailed information on health effects and symptoms.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : In case of fire, use water spray (fog), foam, dry chemical or CO₂.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : No specific fire or explosion hazard.

Hazardous combustion products : Decomposition products may include the following materials:
carbon oxides
halogenated compounds
metal oxide/oxides, nitrogen oxides (NO, NO₂ etc.) , sulphur dioxide

5.3 Advice for firefighters

Special precautions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Provide adequate ventilation. Put on appropriate personal protective equipment (see Section 8).

6.2 Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe dust. Do not ingest. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Empty containers retain product residue and can be hazardous.

7.2 Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

Remarks : Protect from moisture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Exposure limit values : Not available.

Derived effect levels

Ingredient name	Type	Exposure	Value	Population	Effects	Remarks
Calcium formate	DNEL	Long term Oral	23,9 mg/ kg bw/day	Consumers	Systemic	-
	DNEL	Long term Inhalation	337 mg/m ³	Workers	Systemic	-
	DNEL	Short term Inhalation	337 mg/m ³	Workers	Systemic	-
	DNEL	Long term Inhalation	83,2 mg/ m ³	Consumers	Systemic	-
	DNEL	Short term Inhalation	83,2 mg/ m ³	Consumers	Systemic	-
	DNEL	Short term Dermal	4780 mg/ kg bw/day	Workers	Systemic	-
	DNEL	Long term Dermal	4780 mg/ kg bw/day	Workers	Systemic	-
	DNEL	Short term Dermal	16,7 mg/ cm ²	Workers	Local	-
	DNEL	Long term Dermal	16,7 mg/ cm ²	Workers	Local	-
	DNEL	Short term Dermal	2390 mg/ kg bw/day	Consumers	Systemic	-
	DNEL	Long term Dermal	2390 mg/ kg bw/day	Consumers	Systemic	-
	DNEL	Short term Dermal	8,3 mg/cm ²	Consumers	Local	-
	DNEL	Long term Dermal	8,3 mg/cm ²	Consumers	Local	-

Conclusion/Summary : Not available.

Predicted No Effect Concentration (PNEC)

Ingredient name	Compartment Detail	Value	Method Detail	Remarks
Calcium formate	soil	1,5 mg/kg dwt	Assessment Factors	-
	soil	2,21 mg/l	Assessment Factors	-
	Sediment	13,4 mg/ kg dwt	Equilibrium Partitioning	-
	Marine water	0,2 mg/l	Assessment Factors	-
	Marine water	1,34 mg/ kg dwt	Equilibrium Partitioning	-
	Fresh water	2 mg/l	Assessment Factors	-

Conclusion/Summary : Not available.

Recommended monitoring procedures : This product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

8.2 Exposure controls

Risk management measures**Occupational exposure controls**

- Technical measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.

Personal protection measures

- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Recommended: Dust-protection mask if there is a risk of dust formation.
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations
Recommended: (< 1 hour) Polyvinyl chloride - PVC
- Eye protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If operating conditions cause high dust concentrations to be produced, use dust goggles.
Recommended: Tightly fitting safety goggles.
- Skin protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Environmental exposure controls

- Technical measures** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****General information****Appearance**

- Physical state** : Solid. [powders]
- Colour** : White to yellowish.
- Odour** : Faint odour.

Important health, safety and environmental information

- pH** : 5,4 to 5,6 [Conc. (% w/w): 1%]
- Melting point** : 800°C (1472°F)
- Bulk density** : 1000 kg/m³

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Solubility : Easily soluble in the following materials: cold water
Decomposition temperature : 800°C

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability : The product is stable.
10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid : In the case of dusty organic products the possibility of a dust explosion should always be considered. No hazardous reactions when used as directed.
10.5 Incompatible materials : No specific data.
10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Potential acute health effects

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system.
Ingestion : May cause burns to mouth, throat and stomach.
Eye contact : Causes serious eye damage.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
<input checked="" type="checkbox"/> calcium formate	LD50 Oral	- Rat - Male	2650 mg/kg	-	OECD 401 Acute Oral Toxicity
calcium chloride	LD50 Oral	- Rat - Male, Female	2301 mg/kg	-	OECD 401 Acute Oral Toxicity
citric acid	LD50 Oral	- Rat	11700 mg/kg	-	-
	LD50 Oral	- Mouse	5400 mg/kg	-	-
<input checked="" type="checkbox"/> calcium chloride	LD50 Dermal	- Rabbit - Male, Female	>5000 mg/kg	-	-
citric acid	LD50 Dermal	- Rat - Male, Female	>2000 mg/kg	-	-

Acute toxicity estimates

Route	ATE value (Acute Toxicity Estimates)
<input checked="" type="checkbox"/> Not available.	

Sensitiser

Product/ingredient name	Route of exposure	Species	Result	Test description
calcium formate	skin	Guinea pig	Not sensitizing	OECD 406 Skin Sensitization *

Skin : calcium formate:*Test results on an analogous product

Potential chronic health effects

Chronic toxicity

Product/ingredient name	Result	Species	Dose	Exposure
calcium formate	Sub-chronic NOAEL Oral	Rat	3000 mg/kg	13 weeks; 7 days per week
	Sub-acute NOAEL Oral	Rat	1000 mg/kg	4 weeks; 7 days per week

Conclusion/Summary : calcium formate:Test results on an analogous product

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
calcium chloride	Equivocal - Oral -	Rat - Male	-	140 days
citric acid	Negative - Oral -	Rat - Male	-	2 years

Mutagenicity

Product/ingredient name	Test	Experiment	Result
calcium formate	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: +/-	Negative
calcium chloride	-	Experiment: In vitro Subject: Bacteria	Positive
	Cytogenetic assay	Experiment: In vivo Subject: Mammalian-Animal	Positive
	Ames test	Experiment: In vitro Subject: Bacteria	Negative
citric acid	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	OECD 473 In vitro Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Negative
	EU B.22 Rodent Dominant Lethal Test	Experiment: In vivo Subject: Mammalian-Animal	Negative
	OECD 475 Mammalian Bone Marrow Chromosomal Aberration Test	Experiment: In vivo Subject: Mammalian-Animal	Negative

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
citric acid	Negative - Unreported	Rat - Female	<241 mg/kg	15 days Gestation; daily

Reproductive toxicity

Product/ingredient name	Effects	Species	Dose	Exposure / Test
citric acid	-	Rat - Female	Oral: 600 mg/kg	pre-mating; daily

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Test	Result	Species	Exposure
calcium formate	*	Acute EC50 >1000 mg/l	Daphnia - Daphnia magna	48 hours
	*	NOEC 500 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	ISO 8192	Acute EC50 >1000 mg/l	Bacteria - activated sludge	3 hours
	OECD 306 Biodegradability in Seawater *	Acute EC50 >22,1 mg/l Marine water	Bacteria	28 hours
	*	Acute IC50 >1000 mg/l	Algae - Pseudokirchneriella subcapitata	72 hours
	-	Acute LC50 >1000 mg/l	Fish - Danio rerio	96 hours
	OECD 211 Daphnia Magna Reproduction Test *	Acute NOEC >100 mg/l	Daphnia - Daphnia magna	21 days
calcium chloride	OECD 201 Alga, Growth Inhibition Test	Acute EC50 2900 mg/l (biomass)	Algae - Pseudokirchneriella subcapitata	96 hours
	EPA 600/4-90/027	Acute LC50 4630 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	OECD 202 <i>Daphnia</i> sp. Acute Immobilization Test	Acute LC50 2400 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	citric acid	-	Acute EC50 >10000 mg/l	Bacteria - Pseudomonas putida
-		Acute EC50 1535 mg/l	Daphnia - Daphnia magna	24 hours
-		Acute LC50 >100 mg/l	Fish - Pimephales promelas	96 hours
-		Acute LC50 1516 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours
-		Chronic NOEC 425 mg/l	Algae - Scenedesmus quadricauda	8 days

Conclusion/Summary : Not available.

12.2 Persistence and degradability

<u>Product/ingredient name</u>	<u>Aquatic half-life</u>	<u>Photolysis</u>	<u>Biodegradability</u>
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<u>Product/ingredient name</u>	<u>Aquatic half-life</u>	<u>Photolysis</u>	<u>Biodegradability</u>
calcium diformate	-	-	Readily
calcium chloride	-	-	Readily
citric acid	-	-	Inherent

<u>Product/ingredient name</u>	<u>Rate of degradation/elimination (%)</u>	<u>Period (days)</u>	<u>Test</u>
calcium formate	86 %	28 days	OECD 306 Biodegradability in Seawater *
calcium chloride	100 %	28 days	Anorganisch
citric acid	100 %	19 days	OECD 301E Ready
	97 %	28 days	Biodegradability - Modified OECD Screening Test OECD 301B Ready
	85 %	14 days	Biodegradability - CO2 Evolution Test OECD 302B Inherent Biodegradability: Zahn-Wellens/ EMPA Test

Conclusion/Summary : Not available.

12.3 Bioaccumulative potential

Bioaccumulative potential

<u>Product/ingredient name</u>	<u>LogP_{ow}</u>	<u>BCF</u>	<u>Potential</u>
calcium formate	-2,3	-	low
citric acid	-1,64	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects

Other adverse effects : Not available.

AOX : Not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : Examine possibilities for re-utilisation. Product residues and uncleaned empty containers should be packaged, sealed, labelled, and disposed of or recycled according to relevant national and local regulations. Where large quantities are concerned, consult the supplier. When uncleaned empty containers are passed on, the recipient must be warned of any possible hazard that may be caused by residues. For disposal within the EC, the appropriate code according to the European Waste List (EWL) should be used. It is among the tasks of the polluter to assign the waste to waste codes specific to industrial sectors and processes according to the European Waste List (EWL).

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	-	-	-	-
14.2 UN proper shipping name	-	-	-	-
14.3 Transport hazard class(es)/ Marks	☑ -	☑ -	☑ -	☑ -
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	☑ No	☑ No
14.6 Special precautions for user/Additional information	Not regulated.	Not regulated.	Not regulated.	Not regulated.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Hazard notes:

Not dangerous cargo.
Risk of serious damage to eyes.
Keep separated from foodstuffs.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Other EU regulations

Seveso II Directive

This product is not controlled under the Seveso II Directive.

15.2 Chemical Safety Assessment : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number
 vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Eye Dam. 1, H318	Calculation method

Full text of abbreviated H statements : H318 Causes serious eye damage.
 H319 Causes serious eye irritation.

Full text of R-phrases referred to in sections 2 and 3 : R41- Risk of serious damage to eyes.
 R36- Irritating to eyes.

History

Date of issue : 2013-05-27

Date of previous issue : 2011-06-01

Version : 4

Indicates information that has changed from previously issued version.

Notice to reader

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet and its Annex [if required according to Regulation (EC) 1907/2006 (REACH)] is to describe the products in terms of their safety requirements. The given details do not imply any guarantee concerning the composition, properties or performance.