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SAFETY DATA SHEET

YaraLiva NITRABOR

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

1.1 Product identifier

Product name	:	YaraLiva NITRABOR
Product code	:	PA34LG
Product type	:	Solid (Granular solid.)

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

Identified uses
Industrial distribution. Industrial USE to formulate chemical product mixtures. Professional formulation of fertiliser products. Professional USE as fertiliser at Farm - loading and spreading. Professional USE as fertiliser in Greenhouse. Professional USE as liquid fertiliser in open field (e.g. Fertigation). Professional USE as fertiliser - maintenance of equipment.

Uses advised against	:	Other non-specified industry
Reason	:	Due to lack of related experience or data, the supplier cannot approve this use.

1.3 Details of the supplier of the safety data sheet

Yara Norge AS

Address

Street	:	Drammensveien 131
Postal code	:	0277
City	:	Oslo
Country	:	Norway

P.O. Box Address

P.O. Box	:	343 Skøyen
Postal code	:	0213
City	:	Oslo
Country	:	Norway
Telephone number	:	+47 24 15 71 10
Fax no.	:	+47 24 15 71 83
e-mail address of person responsible for this SDS	:	sds.landbruk@yara.com

1.4 Emergency telephone number

National advisory body/Poison Center

Name	:	Giftinformasjonen (Poison Center)
Telephone number	:	+47 22 59 13 00
Hours of operation	:	24h

Supplier

Telephone number	:	+47 21 03 44 52
Hours of operation	:	(7/24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Classification :
Acute Tox. 4, H302 (oral)
Eye Dam./Irrit. 1, H318

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification :
Xn, R22
Xi, R41

Human health hazards : Harmful if swallowed. Risk of serious damage to eyes.

See Section 16 for the full text of the R phrases or H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements :
Harmful if swallowed.
Causes serious eye damage.

Precautionary statements

Prevention : Wear protective gloves and eye protection. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

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.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Hazardous ingredients : Nitric acid, ammonium calcium salt

EU Regulation (EC) No. 1907/2006 (REACH) Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII : Not applicable.

Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : Not applicable.

Other hazards which do not result in classification : Product forms slippery surface when combined with water.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product / ingredient name	Identifiers	%	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
Nitric acid, ammonium calcium salt	RRN: 01-2119493947-16 EC: 239-289-5 CAS : 15245-12-2	>=90 - <100	Xn; R22 Xi; R41	Acute Tox. 4 H302 (ORAL) Eye Dam./Irrit. 1 H318	[1]
disodium tetraborate pentahydrate	RRN: 01-2119490790-32 EC: 215-540-4 CAS : 12179-04-3 Index: 005-011-02-9	>=2 - <3	Repr.Cat.2; R60 R61	Eye Dam./Irrit. 2 H319 Repr. 1B H360FD (Fertility, Unborn child)	[1]

Type
[1] Substance classified with a physical, 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

See Section 16 for the full text of the R phrases or H statements declared above.
There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open. Check for and remove any contact lenses. Get medical attention immediately.

Inhalation : If inhaled, remove to fresh air. Get medical attention immediately. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

Skin contact : Wash with soap and water. Get medical attention if irritation develops.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if you feel unwell.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : No known significant effects or critical hazards.

Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : Adverse symptoms may include the following:
stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use flooding quantities of water for extinction.

Unsuitable extinguishing media : Do NOT use chemical extinguisher or foam or attempt to smother the fire with steam or sand.

5.2 Special hazards arising from the substance or mixture

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

Hazardous thermal decomposition products : Decomposition products may include the following materials:
metal oxide/oxides
Avoid breathing dusts, vapors or fumes from burning materials.
In case of inhalation of decomposition products in a fire, symptoms may be delayed.

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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Additional information : None.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate

ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions : Avoid dispersal of spilled 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 material for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

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

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : 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. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Recommendations : 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. Store locked up. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. Keep away from: organic materials, oil and grease.

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If 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.

DNELs/DMELs

Product / ingredient name	Type	Exposure	Value	Population	Effects
Nitric acid, ammonium calcium salt	DNEL	Long term Dermal	13,9 mg/kg bw/day	Workers	Systemic
Nitric acid, ammonium calcium salt	DNEL	Long term Inhalation	98 mg/m³	Workers	Systemic

PNECs

Product / ingredient	Type	Compartment Detail	Value	Method Detail

name				
Nitric acid, ammonium calcium salt	PNEC	Sewage Treatment Plant	18 mg/l	Assessment Factors

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : A washing facility or water for eye and skin cleaning purposes should be present.

Eye/face 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. Recommended: Tightly-fitting goggles CEN: EN166

Skin protection

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.
> 8 hours (breakthrough time): Protective gloves should be worn under normal conditions of use.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. Recommended: Filter P2 (EN 143)

Environmental exposure controls : 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

Appearance

Physical state : Solid (Granular solid.)
Color : White.
Odor : Odorless.
Odor threshold : Not determined.
pH : 6,3 [Conc. (% w/w): 110 g/l]

Melting point/freezing point	:	Decomposes: 400 °C
Initial boiling point and boiling range	:	Not determined
Flash point	:	Not applicable
Evaporation rate	:	Not determined
Flammability (solid, gas)	:	Non-flammable.
Upper/lower flammability or explosive limits	:	**Lower:** Not determined **Upper:** Not determined
Vapor pressure	:	Not determined
Vapor density	:	Not determined
Relative density	:	Not determined
Bulk density	:	1.100 kg/m3
Density	:	1,100 g/cm3
Solubility(ies)	:	Soluble in the following materials: cold water
Partition coefficient: n-octanol/water	:	Not determined
Auto-ignition temperature	:	Not determined
Viscosity	:	**Dynamic:** Not determined **Kinematic:** Not determined
Explosive properties	:	None.
Oxidizing properties	:	None.

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	:	Avoid contamination by any source including metals, dust and organic materials.
10.5 Incompatible materials	:	alkalis combustible materials reducing materials organic materials acids
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

Acute toxicity

Product / ingredient name	Result	Species	Dose	Exposure	References
Nitric acid, ammonium calcium salt					
	LD50 Oral	Rat	500 mg/kg OECD 423	-	IUCLID 5
	LD50 Dermal	Rat	> 2.000 mg/kg OECD 402	-	IUCLID 5

Conclusion/Summary : Harmful if swallowed.

Irritation/Corrosion

Product / ingredient name	Result	Species	Score	Exposure	Observation	References
Nitric acid, ammonium calcium salt	Eyes - Severe irritant OECD 405	Rabbit		24 - 72 h	21 d	IUCLID 5

Conclusion/Summary
Skin : No known significant effects or critical hazards.
Eyes : Causes serious eye damage.
Respiratory : No known significant effects or critical hazards.

Sensitization

Conclusion/Summary
Skin : No known significant effects or critical hazards.
Respiratory : No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary : No known significant effects or critical hazards.

Carcinogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Product / ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure	References
Nitric acid, ammonium calcium salt	Negative	Negative	Negative	Rat	Oral : 1500 mg/kg OECD 422	53 days	IUCLID 5

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : No known significant effects or critical hazards.

Information on the likely routes of exposure : No known significant effects or critical hazards.

Potential acute health effects

Inhalation : May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.

Skin contact : No known significant effects or critical hazards.

Eye contact : Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.

Ingestion : Adverse symptoms may include the following: stomach pains

Skin contact : No specific data.

Eye contact : Adverse symptoms may include the following: pain watering redness

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.

Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

Product / ingredient name	Result	Species	Dose	Exposure	References
Nitric acid, ammonium calcium salt	Sub-acute NOAEL Oral	Rat	> 1000 mg/kg OECD 407	28 days	IUCLID 5
	Sub-acute NOAEL Oral	Rat	> 1500 mg/kg OECD 407	28 days	IUCLID 5

Conclusion/Summary : No known significant effects or critical hazards.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product / ingredient name	Result	Species	Exposure	References
Nitric acid, ammonium calcium salt				
	Acute LC50 447 mg/l Fresh water	Fish - Fish	48 h	IUCLID 5
	Acute EC50 > 100 mg/l Fresh water OECD 202	Aquatic invertebrates. Daphnia	48 h	IUCLID 5
	Acute LC50 > 100 mg/l Fresh water OECD 201	Aquatic plants - Algae	72 h	IUCLID 5
	Acute EC50 > 1.000 mg/l Activated sludge OECD 209	Micro-organism - Activated sludge	3 h	IUCLID 5

Conclusion/Summary : No known significant effects or critical hazards.

12.2 Persistence and degradability

Conclusion/Summary : Readily biodegradable in plants and soils.

Product / ingredient name	Aquatic half-life	Photolysis	Biodegradability	References
Nitric acid, ammonium calcium salt				
			Not relevant for inorganic substances.	

12.3 Bioaccumulative potential

Product / ingredient name	LogPow	BCF	Potential	References
Nitric acid, ammonium calcium salt	< 0	-	low	

Conclusion/Summary : No known significant effects or critical hazards.

12.4 Mobility in soil

Soil/water partition coefficient (KOC) : Not available.

Mobility : This product may move with surface or groundwater flows because its water solubility is: high

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure

Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
06 10 02*	wastes containing dangerous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Empty the bag by shaking to remove as much as possible of its contents. Empty bags may be disposed of as non-hazardous material or returned for recycling.

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 spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulation: ADR/RID	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	No.
14.6 Additional information	

Regulation: ADN	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	No.
14.6 Additional information	
Danger code : Not applicable.	

Regulation: IMDG	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	No.
14.6 Additional information	

Regulation: IATA	
14.1 UN number	Not regulated.
14.2 UN proper shipping name	
14.3 Transport hazard class(es)	
14.4 Packing group	
14.5 Environmental hazards	No.
14.6 Additional information	
Marine pollutant	No.

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

14.8 IMSBC

Bulk cargo shipping name : CALCIUM NITRATE FERTILIZER
Class : Not applicable.
Group : C
Marpol V : Non-HME

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 authorization

None of the components are listed.

Substances of very high concern: The following components are listed:

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
disodium tetraborate pentahydrate	EU - Substances of very high concern - Toxic to reproduction	Candidate	ED/30/2010	2010-06-18
	EU - Substances of very high concern - Toxic to reproduction	Candidate	ED/30/2010	2010-06-18

Other EU regulations

Europe inventory : All components are listed or exempted.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

Product / ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
disodium tetraborate pentahydrate			Repr.Cat.2; R60 R61	Repr.Cat.2; R60 R61 Repr. 1B, H360FD (Fertility)

Notes : To our knowledge no other country or state specific regulations are applicable.

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
DMEL = Derived Minimal Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
PBT = Persistent, Bioaccumulative and Toxic
vPvB = Very Persistent and Very Bioaccumulative
bw = Body weight

Key literature references and sources for data :
EU REACH IUCLID5 CSR.
National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda Registry of Toxic Effects of Chemical Substances.
IHS, 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada.Regulation (EC) No 1272/2008 Annex VI.

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

Classification	Justification
Acute Tox. 4, H302 (oral) Eye Dam./Irrit. 1, H318	Calculation method Calculation method

Full text of abbreviated H statements :
H302 (oral) Harmful if swallowed.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H360FD (Fertility, Unborn child) May damage fertility. May damage the unborn child.

Full text of classifications [CLP/GHS] :
Acute Tox. 4, H302: ACUTE TOXICITY (oral) - Category 4
Eye Dam./Irrit. 1, H318: SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Eye Dam./Irrit. 2, H319: SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2

		Repr. 1B, H360FD (Fertility, Unborn child) : Reproductive toxicity (Fertility, Unborn child) - Category 1B
Full text of abbreviated R phrases	:	R60- May impair fertility. R61- May cause harm to the unborn child. R22- Harmful if swallowed. R41- Risk of serious damage to eyes.
Full text of classifications [DSD/DPD]	:	Repr.Cat.2 - Toxic to reproduction category 2 Xn - Harmful Xi - Irritant
Date of printing	:	02.11.2015
Date of issue/ Date of revision	:	14.09.2015
Date of previous issue	:	02.10.2014
Version	:	2.0
Prepared by	:	Yara Product Classifications & Regulations.

|| Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information provided in this Safety Data Sheet is accurate as at the date of its issue. The information it contains is being given for safety guidance purposes and relates only to the specific material and uses described in it. This information does not necessarily apply to that material when combined with other material(s) or when used otherwise than as described herein, since all materials may represent unknown hazards and should be used with caution. Final determination of the suitability of any material is the sole responsibility of the user.

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Identification of the substance or mixture

Product definition : Mixture

Product name : YaraLiva NITRABOR

Exposure Scenario information : Update of exposure scenarios

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - nitric acid, ammonium calcium salt - Distribution, Formulation
Identified use name	:	Industrial distribution. Industrial USE to formulate fertilisers product mixtures.
Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC01, PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15, PROC19
Environmental Release Category	:	ERC02, ERC03
Market sector by type of chemical product	:	PC01, PC04, PC09a, PC11, PC12, PC15, PC16, PC20, PC21, PC29, PC35, PC37, PC39, SU 0: Other: K15000, R30 200, H15100, PC 0: Other: UCN P15100, PC 0: Other: UCN K35000, O05990, O40000
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02780-1/2013-12-27

Section 2 — Exposure controls

Contributing exposure scenario controlling environmental exposure for: All
This product is not classified according to EU legislation., No exposure assessment presented for the environment.

Contributing exposure scenario controlling worker exposure for:

Product Characteristics	:	Inorganic salt.
Concentration of substance in mixture or article	:	<= 100 %
Physical state	:	Solid. Granulate Liquid. Melt prills
Dust	:	Solid, low dustiness
Frequency and duration of use	:	Use duration (h/d): < 8
Area of use:	:	Indoor

Ventilation control measures	:	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., No special ventilation requirements.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Pay attention to good general hygiene and housekeeping., Wash hands and face before breaks and immediately after handling the product., Do not eat, drink or smoke when using this product.
Personal protection	:	Causes serious eye damage., Wear protective gloves/clothing and eye/face protection., Wear suitable gloves tested to EN374., Wear work clothing with long sleeves., If necessary:, Chemical splash goggles or face shield., See Section 8 of the safety data sheet (personal protective equipment).

Section 3 — Exposure estimation and reference to its source

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Contributing Scenario : **All** Qualitative approach used to conclude safe use.
Exposure estimation	:	Not determined Oral exposure is not expected to occur. See Section 8 in SDS, DNEL.

Section 4 — Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES

Environment	:	Not applicable.
Health	:	Not applicable.

Abbreviations and acronyms

Process Category	:	PROC01 - Use in closed process, no likelihood of exposure PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14 - Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC15 - Use a laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available
Environmental Release	:	ERC02 - Formulation of preparations

Category		ERC03 - Formulation in materials
Market sector by type of chemical product	:	PC01 - Adhesives, sealants PC04 - Anti-Freeze and de-icing products PC09a - Coatings and paints, thinners, paint removers PC11 - Explosives PC12 - Fertilizers PC15 - Non-metal surface treatment products PC16 - Heat transfer fluids PC20 - Products such as ph-regulators, flocculants, precipitants, neutralization agents PC21 - Laboratory chemicals PC29 - Pharmaceuticals PC35 - Washing and cleaning products (including solvent based products) PC37 - Water treatment chemicals PC39 - Cosmetics, personal care products SU 0: Other: K15000 - Coagulation agents R30 200 - Raw materials for production of glass and ceramics H15100 - Curing Agents - Concrete hardeners PC 0: Other: UCN P15100 - Accelerators PC 0: Other: UCN K35000 - Construction materials (building materials) O05990 - Drilling chemicals - Other drilling chemicals O40000 - Oxidizing agent.

Annex to the extended Safety Data Sheet (eSDS) - Exposure Scenario:

Section 1 — Title

Short title of the exposure scenario	:	Yara - nitric acid, ammonium calcium salt - Professional, Fertilizer.
Identified use name	:	Professional formulation of fertiliser products. Professional USE as fertiliser at Farm - loading and spreading. Professional USE as fertiliser in Greenhouse. Professional USE as liquid fertiliser in open field (e.g. Fertigation). Professional USE as fertiliser - maintenance of equipment.
Substance supplied to that use in form of	:	As such, In a mixture

List of use descriptors

Process Category	:	PROC02, PROC03, PROC05, PROC08a, PROC08b, PROC09, PROC11, PROC13, PROC15, PROC19, PROC26
Environmental Release Category	:	ERC08a, ERC08b, ERC08d, ERC08e
Market sector by type of chemical product	:	PC12
Sector of end use	:	SU01, SU10
Subsequent service life relevant for that use	:	No.

Number of the ES	:	02783-1/2013-12-27

Section 2 — Exposure controls

Contributing exposure scenario controlling environmental exposure for: All
This product is not classified according to EU legislation., No exposure assessment presented for the environment.

Contributing exposure scenario controlling worker exposure for:

Product Characteristics	:	Inorganic salt.
Concentration of substance in mixture or article	:	<= 100 %
Physical state	:	Solid. Granulate Liquid. Melt prills
Dust	:	Solid, low dustiness
Frequency and duration of use	:	Use duration (h/d): < 8
Area of use:	:	Indoor, Outdoor

Ventilation control measures	:	Provide a basic standard of general ventilation (1 to 3 air changes per hour)., No special ventilation requirements.

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene	:	Pay attention to good general hygiene and housekeeping., Wash hands and face before breaks and immediately after handling the product., Do not eat, drink or smoke when using this product.
Personal protection	:	Causes serious eye damage., Wear protective gloves/clothing and eye/face protection., Wear suitable gloves tested to EN374., Wear work clothing with long sleeves., If necessary:, Chemical splash goggles or face shield., See Section 8 of the safety data sheet (personal protective equipment).

Section 3 — Exposure estimation and reference to its source

Exposure estimation and reference to its source - Workers:

Exposure assessment (human):	:	Contributing Scenario : **All** Qualitative approach used to conclude safe use.
Exposure estimation	:	Not determined Oral exposure is not expected to occur. See Section 8 in SDS, DNEL.

Section 4 — Guidance to Downstream User to evaluate if he works inside the boundaries set by the ES

Environment	:	Not applicable.
Health	:	Not applicable.

Abbreviations and acronyms

Process Category	:	PROC02 - Use in closed, continuous process with occasional controlled exposure PROC03 - Use in closed batch process (synthesis or formulation) PROC05 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC08a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC08b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC09 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC11 - Spraying outside industrial settings and/or applications PROC13 - Treatment of articles by dipping and pouring PROC15 - Use a laboratory reagent PROC19 - Hand-mixing with intimate contact and only PPE available PROC26 - Handling of solid inorganic substances at ambient

		temperature
Environmental Release Category	:	ERC08a - Wide dispersive indoor use of processing aids in open systems ERC08b - Wide dispersive indoor use of reactive substances in open systems ERC08d - Wide dispersive outdoor use of processing aids in open systems ERC08e - Wide dispersive outdoor use of reactive substances in open systems
Market sector by type of chemical product	:	PC12 - Fertilizers
Sector of end use	:	SU01 - Agriculture, forestry, fishery SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)