

Date of issue/ Date of revision : 02.10.2014
Date of previous issue : 00.00.0000
Version : 1.0



SAFETY DATA SHEET

OPTI-NS 27-0-0 (4S)

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

1.1 Product identifier

Product name : OPTI-NS 27-0-0 (4S)
Product code : PA26AG
Product type : Solid (granulates)

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 : None identified.

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 : Not classified.

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.
 Physical/chemical hazards : Not applicable.
 Human health hazards : Not applicable.
 Environmental hazards : Not applicable.

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

Signal word : No signal word.

Hazard statements : Not applicable.

Precautionary statements

General : Not applicable.

Supplemental label elements : Safety data sheet available on request.

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 : Applicable, Table 58.

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 : Not applicable.

Regulation (EC) No. 1907/2006,
Annex XIII

Substance meets the criteria : Not applicable.
for vPvB according to

Regulation (EC) No. 1907/2006,
Annex XIII

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

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]	
Ammonium nitrate	RRN: 01-2119490981- 27 EC: 229-347-8 CAS : 6484-52-2	>=70 - <80	O; R8 Xi; R36	Ox. Sol. 3 H272 Eye Dam./Irrit. 2 H319	[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** : Rinse with plenty of running water. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : If inhaled, remove to fresh air. 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.
- 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 adverse health effects persist or are severe.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : 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 : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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:
nitrogen oxides
sulfur oxides
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. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised 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 materials for containment and cleaning up

- Small spill** : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled 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, 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).

- 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. 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.

Seveso II Directive - Reporting thresholds

<u>Danger criteria</u>		
Category	Notification and MAPP threshold	Safety report threshold
Ammonium nitrate	1.250 t	5.000 t

7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker or exposure or environmental releases.

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
Ammonium nitrate	DNEL	Long term Dermal	21,3 mg/kg bw/day	Workers	Systemic
Ammonium nitrate	DNEL	Long term Inhalation	37,6 mg/m ³	Workers	Systemic

PNECs

Product / ingredient name	Type	Compartment Detail	Value	Method Detail
Ammonium nitrate	PNEC	Fresh water	0,45 mg/l	Assessment Factors
Ammonium nitrate	PNEC	Marine water	0,045 mg/l	Assessment Factors
Ammonium nitrate	PNEC	Intermittent release.	4,5 mg/l	Assessment Factors
Ammonium nitrate	PNEC	Sewage Treatment Plant	18 mg/l	Assessment Factors

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

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. Wash contaminated clothing before reusing. 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.

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.

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 : Use a properly fitted, particulate filter 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.

- 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 (granulates)
Color : Beige.
Odor : Odorless.
Odor threshold : Not determined.
pH : 7 [Conc. (% w/w): 10 g/l]

- Melting point/freezing point** : Decomposes: > 170 °C

- Initial boiling point and boiling range** : Not determined

- Flash point** : Not determined
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 : Not determined
Water solubility : > 1.000 g/l @ 25 °C

- 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
Ammonium nitrate					
	LD50 Oral	Rat	2.950 mg/kg OECD 401	-	IUCLID 5
	LD50 Dermal	Rat	> 5.000 mg/kg OECD 402	-	IUCLID 5

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

Irritation/Corrosion

Product / ingredient name	Result	Species	Score	Exposure	Observation	References
Mixture	Eyes - Non-irritating . OECD 405	Rabbit	< 1	1 - 48 h	14 d	Fertilizers Europe
Ammonium nitrate	Eyes - Irritant OECD 405	Rabbit			-	IUCLID 5

Conclusion/Summary

Skin : Non-irritating.
Eyes : Non-irritating.
Respiratory : Non-irritating.

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
Ammonium nitrate	-	Negative	Negative	Rat	Oral : > 1500 mg/kg bw/day OECD 422	28 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 : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Eye contact : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : No specific data.

Ingestion : No specific data.

Skin contact : No specific data.

Eye contact : No specific data.

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
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Ammonium nitrate	Chronic NOAEL Oral	Rat	256 mg/kg OECD 422	28 days	IUCLID 5
	Sub-acute NOEC Dusts and mists Inhalation	Rat	> 185 mg/kg OECD 412	2 weeks 5 hours per day	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
Ammonium nitrate				
	Acute EC50 490 mg/l Fresh water	Aquatic invertebrates. Daphnia	48 h	IUCLID 5
	Acute EC50 1.700 mg/l Salt water	Aquatic plants - Algae	10 d	IUCLID 5

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

12.2 Persistence and degradability

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

Product / ingredient name	Aquatic half-life	Photolysis	Biodegradability	References
Ammonium nitrate				
			Not relevant for inorganic substances.	

12.3 Bioaccumulative potential

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

12.4 Mobility in soil

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

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** : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

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.
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	
Marine pollutant	: No.
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	
Marine pollutant	: No.

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 : AMMONIUM NITRATE BASED FERTILIZER
(non-hazardous)
Class : Not applicable.
Group : C

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: None of the components are listed.

Other EU regulations

Europe inventory : All components are listed or exempted.

Seveso II Directive

This product is controlled under the Seveso II Directive.

Danger criteria

Category
Ammonium nitrate

National regulations

- 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. 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.
 Regulation (EC) No 1272/2008 Annex VI.

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

Classification	Justification
Not classified.	On basis of test data. Bridging principle "Substantially similar mixtures"

- Full text of abbreviated H statements** : H319 Causes serious eye irritation.
 H272 May intensify fire; oxidizer.
- Full text of classifications [CLP/GHS]** : **Eye Dam./Irrit. 2, H319:** SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Ox. Sol. 3, H272: OXIDIZING SOLIDS - Category 3
- Full text of abbreviated R phrases** : R8- Contact with combustible material may cause fire.
 R36- Irritating to eyes.
- Full text of classifications [DSD/DPD]** : O - Oxidizing
 Xi - Irritant

Revision comments : See Section 1 for supplier contact information.
Date of printing : 06.10.2014
Date of issue/ Date of revision : 02.10.2014
Date of previous issue : 00.00.0000
Version : 1.0
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.