

all in one Start Fertilizer Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II / Regulation (EU) No. 453/2010

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

1.1 Product identifier

Product name: Flower Power fertilizers Start
Product type: 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 (includes soil conditioning).
Professional USE as fertiliser in Greenhouse (e.g. Fertigation, includes pH control of fertiliser solution with acid).
Professional USE as liquid fertiliser in open field (e.g. Fertigation).
Professional USE as fertiliser - maintenance of equipment.

Uses advised against: None identified.
Reason: None known.

1.3 Details of the supplier of the safety data sheet

**Company/undertaking identification
Manufacturer / Supplier:** flowerpowerfertilizers.com
Postbus 213
1000 AE Amsterdam
The Netherlands
E: info@flowerpowerfertilizers.com

Emergency telephone number: 0031 30 274 88 88 (24h – only for medical professionals)

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.

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

Classification: Not classified.

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.

Precautionary statements

Prevention: Not applicable.

Response: Not applicable.

Storage: Not applicable.

Disposal: Not applicable.

Supplemental label elements: Safety Data Sheet available for professional user on request.

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

Substance/mixture:

Mixture

Ingredient name	Identifiers	%	Classification		Type
Ammonium nitrate	RRN: 01-2119490981-27 EC: 229-347-8 CAS : 6484-52-2	3 - 5	67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	[1]
			O; R8 Xi; R36	Ox. Sol. 3 H272 Eye Dam./Irrit. 2 H319	
boric acid	RRN: 01-2119486683-25 EC: 233-139-2 CAS : 10043-35-3 Index: 005-007-00-2	0.1 - 0.2	T; Repr.Cat.2; R60 R61	Repr. 1B H360F Repr. 1B H360D	[1]

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] PBT-substance [4] vPvB-substance

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 symptoms occur.

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 symptoms occur.

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:	The product itself is not combustible but it can support combustion, even in absence of air. On heating it melts and further heating can cause decomposition, releasing toxic fumes containing nitrogen oxides and ammonia.
Hazardous thermal decomposition products:	Decomposition products may include the following materials: nitrogen oxides sulfur oxides phosphorus 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. 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

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). Product forms slippery surface when combined with water.
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.
-------------------------	---

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. 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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.
---	--

Derived effect levels

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

Predicted effect concentrations

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:

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

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.

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
Color:	Not determined
Odor:	Not determined
Odor threshold:	Not determined
pH:	Not determined
Melting point/freezing point:	Not determined
Initial boiling point and boiling range	Not determined
Flash point:	Not determined
Evaporation rate:	Not determined
Flammability:	Non-flammable.
Burning time:	Not determined
Burning rate:	Not determined
Upper/lower flammability explosive limits:	Lower: Not determined Upper: Not determined
Vapor pressure:	Not determined
Vapor density:	Not determined
Relative density:	Not determined
Bulk density:	Not determined
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

No specific data.

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
boric acid					
	LD50 Oral	Rat.	2,500 mg/kg	-	HBPTO* 2,1430,2001
	LC50 Inhalation	Rat.	2 mg/l	-	
	LD50 Dermal	Rabbit	> 2,000 mg/kg	-	

Conclusion/Summary:

Not toxic.

Irritation/Corrosion

Product / ingredient name	Result	Species	Score	Exposure	Observation	References
Ammonium nitrate	Eyes - Irritant	Rabbit			-	IUCLID 5

Conclusion/Summary

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

Sensitization

Conclusion/Summary

Skin: Not sensitizing
Respiratory: Not sensitizing

Mutagenicity

Conclusion/Summary: No mutagenic effect.

Carcinogenicity

Conclusion/Summary: No carcinogenic effect.

Teratogenicity

Conclusion/Summary: No teratogenic effect.

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	28 days	IUCLID 5

Conclusion/Summary: Not considered to be toxic to the reproductive system.

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: Adverse health effects are considered unlikely, when the product is used according to directions.

Potential delayed effects: None identified.

Long term exposure

Potential immediate effects: Adverse health effects are considered unlikely, when the product is used according to directions.

Potential delayed effects: None identified.

Potential chronic health effects

Product / ingredient name	Result	Species	Dose	Exposure	References
Ammonium nitrate	Chronic NOAEL Oral	Rat	256 milligrams per kilogram	28days	IUCLID 5
	Sub-acute NOEC Dusts and mists Inhalation	Rat	> 185 milligrams per kilogram	2 weeks 5 hours per day	IUCLID 5

Conclusion/Summary: Not toxic.

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.

Mutagenicity: 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 LC50 447 mg/l Fresh water	Fish	48 h	IUCLID 5
	Acute EC50 490 mg/l Fresh water	Daphnia	48 h	IUCLID 5
	Acute EC50 1,700 mg/l Salt water	Aquatic plants	10 d	IUCLID 5
boric acid				
	Acute LC50 > 100 mg/l Fresh water	Fish	4 d	
	Acute EC50 226 mg/l Fresh water	Daphnia	2 d	Environmental Fate and Effects Division, U.S.EPA, Washington, D.C.

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

12.2 Persistence and degradability

Conclusion/Summary: Readily biodegradable in plants and soils. The product does not show any bioaccumulation phenomena.

12.3 Bioaccumulative potential

Product / ingredient name	LogPow	BCF	Potential	References
Boric acid (H3BO3)	0.175	-		

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

Methods of disposal:

The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.

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	ADR/RID

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	ADN No.

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 Special precautions for user	IMDG No. Not applicable.

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 Special precautions for user	IATA No. Not applicable.

Remark:

A NPK fertilizer not liable to self-sustaining decomposition according to the IMO-standard trough test as defined in the recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, 2. part III, section 38.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

14.8 IMSBC

Not available.

SECTION 15: Regulatory information

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

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

Other EU regulations

Europe inventory: Not determined.

Integrated pollution prevention and control list (IPPC) - Air: Not listed

Integrated pollution prevention and control list (IPPC) - Water: Not listed

Hazardous incident ordinance: Remark: Not applicable.

National regulations

Product / ingredient name	Carcinogenic effects	Mutagenic effects	Developmental effects	Fertility effects
boric acid			Repr.Cat.2; R60 R61	Repr.Cat.2; R60 R61

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 Regulation (EC) No 1272/2008 Annex VI
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
Atrion International Inc. 4777 Levy Street, St Laurent, Quebec HAR 2P9, Canada

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

Classification	Justification
Not classified.	Calculation method

Full text of abbreviated H statements:

H319	Causes serious eye irritation.
H272	May intensify fire; oxidizer.
H360FD	May damage fertility. May damage the unborn child.

Full text of classifications [CLP/GHS]:

Eye Dam./Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Ox. Sol. 3	H272: OXIDIZING SOLIDS - Category 3
Repr.	H360FD: TOXIC TO REPRODUCTION Fertility Unborn child

Full text of abbreviated R phrases:

R8- Contact with combustible material may cause fire.
R60- May impair fertility.
R61- May cause harm to the unborn child.
R36- Irritating to eyes.

Full text of classifications [DSD/DPD]:

O - Oxidizing
Repr.Cat.2 - Toxic to reproduction category 2
Xi - Irritant

Date of printing: 01.08.2012
Date of issue/ Date of revision: 14.06.2013
Date of previous issue: 00.00.0000
Version: 1.0

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.