Safety Data Sheet according to OSHA-GHS (29 CFR part 1910.1200 HCS 2012)

PRODUCT NAME **Regal Solugreen 20-10-20**

Product Code:

Date of issue: 12/10/2015 Supersedes: -

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier Regal Solugreen 20-10-20

Recommended uses:

Fertilizer end-use, preparation of fertilizers mixtures.

Dry fertilizer for mixing with water for foliar and soil applications.

Restrictions on uses:

None

Manufacturer Regal Chemical Company
600 Branch Dr.,
Alpharetta, GA 30004

Company Telephone/Fax (770) 475-4837

Emergency Telephone Number CHEMTREC: 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification of the mixture

Classification of the chemical in accordance with 29CFR §1910.1200

Hazard classes and Hazard categories	Hazard statements
Oxidizing solid, Cat. 3	May intensify fire; oxidizer
Eye irritant Cat. 2	Causes serious eye irritation
Toxic to reproduction cat. 1B	May damage fertility. May damage the unborn child.

Label elements

Hazard pictograms

Signal word DANGER

Hazard Statements May intensify fire; oxidizer
Causes serious eye irritation
May damage fertility. May damage the unborn child.

Precautionary Statements

Keep away from flammable / combustible / reducing materials.

Wear protective gloves / protective clothing / eye protection. Wash hands and face thoroughly after handling.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

In case of fire: use any suitable mean for extinguishing surrounding fire. Spray water for small fires. For large fires flood with abundant water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF exposed or concerned: Get medical advice/attention.

Store locked up

Dispose of contents/container according to local/state/federal regulations.

Other hazards

None

Classification of the relevant ingredients of the mixture in accordance with 29CFR §1910.1200

Potassium nitrate	Oxidizing solid, Cat. 3
Ammonium nitrate	Oxidizing solid, cat. 3; Eye irrit. cat. 2
Boric acid	Toxic to reproduction, Cat. 1B

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is to be considered as a mixture/preparation

Substance name	CAS No	EC No	Concentration
Potassium nitrate	7757-79-1	231-818-8	30% - 60%
Ammonium nitrate	6484-52-2	229-347-8	20% - 50%
Boric acid	10043-35-3	233-139-2	< 1%
Perchlorate (ClO_4^-)			< 0.01%
Iodate (IO_3^-)			< 50 ppm

4. FIRST AID MEASURES

Description of first aid measures

General information

In case of persisting adverse effects consult a physician.

Never give anything by mouth to an unconscious person or a person with cramps.

In case of inhalation

Remove to fresh air and keep at rest in a position comfortable for breathing.

Get medical attention for any breathing difficulty.

In case of skin contact

Wash with plenty of soap and water.

If skin irritation occurs: Get medical advice/attention.

In case of eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

In case of ingestion

Rinse mouth and drink plenty of water. Do not induce vomiting.

Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

The following symptoms may occur:

In case of inhalation	Irritation to respiratory tract	
	Delayed lung effects after short term exposure to thermal degradation products	
In case of skin contact	May cause redness or irritation	
In case of eye contact	Causes serious eye irritation	
In case of ingestion	Ingestion of large amounts may cause:	gastrointestinal disturbances

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media:	Use any suitable mean for extinguishing surrounding fire. Spray water for small fires. For large fires flood with abundant water.
Unsuitable material:	None, but attention should be paid to compatibility with chemicals surrounding.

Specific hazards arising from the chemical

Oxidizer. Contact with combustible materials will not cause spontaneous ignition, however, this product will enhance an existing fire.

Thermal decomposition can lead to the escape of toxic/corrosive gases and vapours.

Thermal decomposition products: Nitrous oxides (NOx), nitrites, phosphorus oxides, ammonia and metallic oxides.

Protective equipment and precautions for firefighters

Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (self contained breathing apparatus (SCBA)).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Provide adequate ventilation. Wear personal protection equipment (Section 8).

Environmental precautions

Do not allow to enter into surface water or drains. Ensure waste is collected and contained.

Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal or recovery.

Unsuitable material for containment/taking up: Do not absorb in saw-dust or other combustible absorbents.

Other information

None

7. HANDLING AND STORAGE

Precautions for Safe Handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid generation of dust. Provide adequate ventilation. Wear personal protective equipment. Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from flammable, combustible and reducing substances.

Conditions for safe storage, including any incompatibilities

Keep/store only in original container. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Do not store together with: Combustible substance, reducing agents

Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Occupational exposure limits

		Potassium nitrate	Ammonium nitrate	Boric acid
OSHA	PEL	Not Established	Not Established	Not Established
	STEL/ceiling	Not Established	Not Established	Not Established
ACGIH (2012 TLVs® and BEIs®)				
	TWA	Not Established	Not Established	2 mg/m^3 (inhal. fraction)
	STEL/ceiling	Not Established	Not Established	6 mg/m^3 (inhal. fraction)

Derived No-Effect Level (DNEL) suggested by the manufacturer

Workers (industrial/professional):	
Potassium nitrate / Ammonium nitrate	
DNEL Human, dermal, long term (repeated):	20.8 mg/kg/day (systemic)
DNEL Human, inhalation, long term (repeated):	36.7 mg/m^3 (systemic)
Boric acid	
DNEL Human, dermal, long term (repeated):	4800 mg B/day (systemic)

Derived No-Effect Level (DNEL) is the level of exposure to the substance above which humans should not be exposed.

Engineering controls

Use exhaust ventilation to keep airborne concentrations below exposure limits.

Personal Protective Equipment

Eye/face protection	Chemical goggles required all the time.
Skin Protection	Nitrile rubber gloves, over 0.11 mm thickness, > 480 min breakthrough time, recommended. Overall.
Respiratory Protection	Wear respiratory protection, where airborne concentrations are expected to exceed exposure limits

General Hygiene Considerations

Avoid contact with eyes and skin. Wash hands and face thoroughly after handling. Have eye-wash facilities immediately available. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid, granular or crystalline powder
Colour	white to pale blue
Odour	Odourless
Odour Threshold	No applicable
pH value	No data available
Melting point / freezing range	No data available
Boiling temperature / boiling range	Not applicable
Flash point	Not applicable
Vapourisation rate / Evaporation rate	No data available
Flammable solids	Not flammable
Explosion limits (LEL, UEL)	Not applicable
Vapour pressure	No data available
Vapour density	No data available
Relative Density	No data available
Solubility	> 100 g/L at 20°C/68°F (water)
Partition coefficient n-octanol /water	Not applicable
Auto Ignition temperature (AIT)	Not applicable
Decomposition temperature	No data available
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidising properties	Oxidizer

Other information

None

10. STABILITY AND REACTIVITY

Reactivity

No hazardous reaction when handled and stored according to provisions.

Chemical stability

Stable under normal storage and temperature conditions.

Possibility of hazardous reactions

None identified

Conditions to avoid

Keep away from flammable, combustible and reducing substances.

Incompatible materials

Flammable, combustible and reducing substances under specifc conditions.

Hazardous decomposition products

Thermal decomposition products: Nitrous oxides (NOx), nitrites, phosphorus oxides, ammonia and metallic oxides.

11. TOXICOLOGICAL INFORMATION

The following information mostly refers to the major component of the product.

Likely routes of exposure (inhalation, ingestion, skin and eye contact)

Eye contact, skin contact and inhalation. Exposure by ingestion is not expected to occur through normal industrial or agricultural

Symptoms related to the physical, chemical and toxicological characteristics

May be irritant to the respiratory tract. Causes serious eye irritation. May cause redness or irritation to the skin. Ingestion of large amounts may cause gastrointestinal disturbances. May cause delayed lung effects after short term exposure to thermal degradation products.

Information on toxicological effects from short and long term exposure

There is no data for the mixture itself.

Acute toxicity

Acute oral toxicity	LD50:	
Acute Toxicity Estimate for the mixture	> 2000 mg/kg bw	(additivity formula)
Potassium nitrate	>2000 mg/kg bw	
Ammonium nitrate	2950 mg/kg bw	
Boric acid	3765 mg/kg bw	
Assessment / classification:	Based on available data for the ingredients of the mixture, the classification criteria are not met.	

Irritant and corrosive effects

Irritation to the skin	Result	Method
Potassium nitrate	non-irritant.	Equivalent/similar to OECD guideline 404
Ammonium nitrate	non-irritant.	Equivalent/similar to OECD guideline 404
Boric acid	non-irritant.	Equivalent/similar to OECD guideline 404
Assessment / classification:	Based on available data, the classification criteria are not met.	
Irritation to eyes	Result	Method
Potassium nitrate	Not-irritating	OECD Guideline 405
Ammonium nitrate	Irritating (cat. 2)	OECD Guideline 405
Boric acid	Not-irritating	Equivalent/similar to OECD guideline 405
Assessment / classification:	Based on available data for ingredients of the mixture, this product is classified and labelled as Eye irritant, cat. 2.	

Respiratory or skin sensitisation

Skin sensitization	Result	Method
Potassium nitrate	not sensitizing.	OECD Guideline 429
Ammonium nitrate	not sensitizing.	OECD Guideline 429
Boric acid	not sensitizing.	OECD Guideline 406
Respiratory sensitisation	No information available.	
Assessment / classification:	Based on available data, the classification criteria are not met.	

Genetic effects

The product does not contain ingredients classified as germ cell mutagens.

	Bacterial (Ames Test)	Chromosomal aberrations	Mutation in mammalian cells
Potassium nitrate	negative	negative	negative
Ammonium nitrate	negative	negative	negative
Boric acid	negative	negative	negative
Assessment / classification:	Based on available data, the classification criteria are not met.		

Reproductive toxicity

Adverse effects on sexual function and fertility/developmental toxicity

	OECD guideline 422.
Potassium nitrate	No adverse effects on fertility/development (NOAEL >1500 mg/kg bw).
Ammonium nitrate	No adverse effects on fertility/development (NOAEL >1500 mg/kg bw).
Boric acid fertility	NOAEL (male rats): 17.5 mg B/kg bw/day (Multigeneration study)
	Boron has been shown to adversely affect male reproduction in laboratory animals, however, male reproductive effects attributable to boron have not been demonstrated in studies of highly exposed workers.

developmental toxicity	Benchmark dose (BMDL05): 10.3 mg B/kg bw/day Developmental effects have been observed in laboratory animals. The critical effect is considered to be decreased fetal body weight in rats. There is no evidence of developmental effects in humans attributable to boron in studies of populations with high exposures to boron.
Assessment / classification:	Based on available data for ingredients of the mixture, this product is classified and labelled as **Presumed human reproductive toxicant**, **Category 1B**, in accordance with Appendix A to 29CFR section 1910.1200.

Specific target organ toxicity (single exposure)

The product does not contain relevant ingredients classified as Target Organ Toxicant after single exposure.

	Practical experience / human evidence
Potassium nitrate	No relevant effect have been observed after single exposure to potassium nitrate.
Ammonium nitrate	Not available
Boric acid	No relevant effect have been observed after single exposure to the substance. No reliable study supports the designation of boric acid as a respiratory irritant.
Assessment / classification:	Based on available data, the classification criteria are not met

Specific target organ toxicity (repeated exposure)

	Organs affected:	Effects	Guideline
Potassium nitrate	None	No effects (NOAEL >1500 mg/kg bw)	OECD 422
Ammonium nitrate	None	No effects (NOAEL >1500 mg/kg bw)	OECD 422
Boric acid	Testes	NOAEL (chronic, rat): 17.5 mg B/kg bw/day	

A number of studies on boric acid or disodium tetraborate decahydrate in diet or via drinking water for periods of 30 days to two years in rats, mice and dogs are available. Most studies support that boron can cause adverse haematological effects and that the main target organ of boron toxicity is the testis.

Assessment / classification:	Based on available data for ingredients of the mixture, this product is classified and labelled as **Presumed human reproductive toxicant**, **Category 1B**, in accordance with Appendix A to 29CFR section 1910.1200.

Aspiration hazard

Physicochemical data and toxicological information does not indicate an aspiration hazard.

Assessment / classification:	Based on available data, the classification criteria are not met

Carcinogenicity

International Agency for Research on Cancer (IARC)	No component of this product present at levels ≥0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
National Toxicology Program (NTP)	No component of this product present at levels ≥0.1% is identified as known or anticipated carcinogen by NTP.
29 CFR part 1910, subpart Z	No component of this product present at levels ≥0.1% is identified as carcinogen or potencial carcinogen by OSHA.
California Proposition 65	No component of this product present at levels ≥0.1% is identified as carcinogen by California Prop.65.
WHO (2003) Nitrate in drinking water	No association between nitrate exposure in humans and the risk of cancer
Assessment / classification:	Based on available data, the classification criteria is not met

Other Toxicological Information

This product contains trace amounts of naturally-occurring perchlorate and iodate. Like other goitrogenic substances, perchlorate may affect iodine uptake by thyroid under specific conditions.

12. ECOLOGICAL INFORMATION

There is no data for the mixture itself. The following information mostly refers to the major component of the product.

Ecotoxicity

Aquatic Toxicity

Potassium nitrate

96-h LC50	1378 mg/L	*Poecilia reticulata* (freshwater fish)
24-h EC50	490 mg/L	*Daphnia magna* (fresh water flea).
10 d EC50	> 1700 mg/L	Several algae species

Ammonium nitrate

48-h LC50	447 mg/L	Fish (*Cyprinus carpio*)
24-h EC50	490 mg/L	*Daphnia magna* (fresh water flea) (read across potassium nitrate).
10 d EC50	> 1700 mg/L	Several algae species (read across potassium nitrate)

Boric acid

96-h LC50	74 - 725 mg B/L	Fish
48-h EC50	45 - 1376 mg B/L	Aquatic invertebrates
72-h EC50	40 mg B/L	Algae (*Pseudokirchneriella subcapitata*)

Assessment / classification Based on available data, the classification criteria are not met

Persistence and degradability

The product contains mainly inorganic nitrate and phosphate salts. In aqueous solutions, these salts dissociate into their respective ions. Phosphate ions are finally incorporated into the Phosphorus cycle. Under anoxic conditions, denitrification occurs and nitrate is ultimately converted into molecular nitrogen as part of the Nitrogen cycle.

Bioaccumulative potential

Low potential for bioaccumulation based on physicochemical properties of main components.

Mobility in soil

The components of this mixture have a low potential for adsorption. Portion not taken up by plants, can leach to groundwater.

Other adverse effects

Excess nitrate leaching may enrich waters leading to eutrophication.

13. DISPOSAL CONSIDERATIONS

Disposal should be in accordance with applicable federal and state laws.

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal method in compliance with applicable regulations.

Waste containing nitrates that exhibit the characteristic of ignitability has the EPA Hazardous Waste Number of D001 according to the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Perchlorate containing product - Special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate and Section 15 for more information regarding California State regulations.

14. TRANSPORTATION INFORMATION

US DOT (49CFR part 172)

UN-No.	1477
UN Proper Shipping Name	NITRATES, INORGANIC, N.O.S.
Hazard class	5.1
Packing group	III
Hazard label(s)	5.1 (oxidizer)
Special marking	No
Special Provision	IB8; IP3; T1; TP33

International Maritime Organization (IMDG Code)

UN-No.	1477
UN Proper Shipping Name	NITRATES, INORGANIC, N.O.S.
Hazard class	5.1
Packing group	III
Marine pollutant	No
Hazard label(s)	5.1 (oxidizer)
Special marking	No
Special Provision	223

International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA)

UN-No.	1477
UN Proper Shipping Name	NITRATES, INORGANIC, N.O.S.
Hazard class	5.1
Packing group	III
Hazard label	5.1 (oxidizer)
Special marking	No
Special Provision	No

Special handling procedure

None

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

Not applicable

Other special precautions

None

15. REGULATORY INFORMATION

US Federal

SARA Title III Rules

Section 311/312 Hazard Classes

Acute Health Hazard	Yes (Eye irritation)
Chronic Health Hazard	Yes (Toxic to reproduction)
Fire Hazard	Yes (Oxidizer)
Release of Pressure	No
Reactive Hazard	No

Section 313 Toxic Chemicals

N511 Nitrate compounds (water dissociable; reportable only when in aqueous solution)

Section 302 Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

None ingredient is listed.

NFPA 704/2012: National Fire Protection Association

Health	1
Fire	0
Reactivity	0
Special	OX

US State Regulations

California Proposition 65	None ingredient is listed.
California Code of Regulations Title 22 (Health & Safety Code), Chapter 33	See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

Chemical Inventories

United States TSCA	All ingredients are listed
Canada DSL	All ingredients are listed
European Union (EINECS)	All ingredients are listed
Japan (METI)	All ingredients are listed

16. OTHER INFORMATION

This SDS complies with 29 CFR part 1910 subpart Z (2012) and ANSI Standard Z400.1-2004

Disclaimer:

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