1. Identification

Product identifier	**Racer DSA**
Other means of identification	Not available.
Synonyms	Dry Micromix
Recommended use	Agriculture Applications
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor Information

Company name	Rosen's Inc.
Address	700 SW 291 Hwy Ste. 204 Liberty, MO 64068 US
Telephone	1-877-781-9191
Website	**www.rosensdiversifiedinc.com**
Contact person	EH&S/Regulatory Department
Emergency phone number	CHEMTREC (24 hours): 1-800-424-9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, oral	Category 4
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity, repeated exposure	Category 2

OSHA defined hazards Not classified.

Label elements

Hazard symbols

Signal word Danger.

Hazard statement Harmful if swallowed. Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. 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/doctor. If exposed or concerned: Get medical advice/ attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If swallowed: Call a poison center/doctor if you feel unwell.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with local/regional/national regulations.

Hazard(s) not otherwise classified (HNOC) Not classified.

Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 1
	Hazardous to the aquatic environment, long term hazard	Category 1

Supplemental information

Hazard statement Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention Avoid release to the environment.

Response Collect spillage.

3. Composition/information on ingredients

Mixtures

Hazardous components

Chemical name	Common name and synonyms	CAS number	%
Zinc Sulfate, Monohydrate		7446-19-7	40 - 50
Manganese Sulfate, Monohydrate		10034-96-5	20 - 30
Iron Sulfate, Monohydrate		17375-41-6	10 - 20
Copper Sulfate, Pentahydrate		7758-99-8	1 - 10
Sodium Tetraborate, Decahydrate		1303-96-4	1 - 10

Composition comments All concentrations are in weight unless ingredient is a gas. Gas concentrations are in percent by volume.
This Safety Data Sheet is not a guarantee of product specification or NPK value(s). NPK content is on specified sales orders, customer invoices, or product specification sheets obtained from supplier.

4. First-aid measures

Eye contact Check for and remove contact lenses. Flush immediately with copious amounts of water or normal saline (minimum of 15 minutes), holding eyelids apart to ensure complete irritation of the eye and eyelid tissue. Take exposed individual to a health care professional, preferably an opthalmologist, for further evaluation.

Skin contact Remove contaminated clothing, shoes and equipment. Wash exposed area with plenty of soap and water. Repeat washing. If redness or irritation occurs, seek medical attention. Wash contaminated clothing before reuse.

Inhalation Move person to fresh air. If the affected person is not breathing, apply artificial respiration. Get medical attention immediately.

Ingestion Rinse mouth thoroughly. Drink 1 or 2 glasses of water. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical attention.

Most important symptoms/effects, acute and delayed Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment needed Treat symptomatically. Symptoms may be delayed. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Water spray. Carbon dioxide (CO_2). Foam. Dry chemical powder.

Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing should be worn when fighting chemical fires. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.
Fire-fighting equipment/instructions	Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from the fire area if you can do so without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Wear suitable protective clothing. Local authorities should be advised if significant spillage cannot be contained. For personal protection, see Section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Collect spillage. After removal flush contaminated area thoroughly with water. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. For waste disposal, see Section 13 of the SDS. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Do not allow to enter drains, sewers or watercourses.

7. Handling and storage

Precautions for safe handling	Do not get this material in contact with eyes. Do not taste or swallow. Avoid contact with skin. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Always use oldest stock first.

8. Exposure controls/personal protection

Occupational exposure limits

US OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Manganese Sulfate, Monohydrate (CAS 10034-96-5)	Ceiling	5 mg/m^3
Copper Sulfate, Pentahydrate (CAS 7758-99-8	PEL	1 mg/m^3

US ACGIH Threshold Limit Values

Components	Type	Value	Form
Manganese Sulfate, Monohydrate (CAS 10034-96-5)	TWA	0.1 mg/m^3 0.02 mg/m^3	Inhalable fraction. Respirable fraction
Ferrous Sulfate, Monohydrate (CAS 17375-4)	TWA	1 mg/m^3	
Sodium Tetraborate, Decahydrate (CAS 1303-96-4)	TWA	2 mg/m^3	Inhalable fraction

US NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Manganese Sulfate, monohydrate (CAS 10034-96-5)	STEL	3 mg/m^3	Fume.
	TWA	1 mg/m^3	Fume.
Ferrous Sulfate, Monohydrate (CAS 17375-41-6)	TWA	1 mg/m^3	
Sodium Tetraborate, Decahydrate (CAS 1303-96-4)	TWA	5 mg/m^3	

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Follow standard monitoring procedures.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors and mists. Provide eyewash station and safety shower.

Individual protection measures such as personal protective equipment

Eye/face protection Wear eye/face protection. Wear safety glasses with side shields (or goggles).

Skin Protection

Hand protection Chemical resistant gloves are recommended. Suitable gloves can be recommended by the glove supplier.

Other Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory protection If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Wear air supplied respiratory protection if exposure concentrations are unknown. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter.
In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134 and ANSI Z88.2.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene consideration Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance
Physical State Solid.
Form Granular.
Color Off-White.
Odor Not available.
Odor threshold Not available.
pH Not available.
Melting point/freezing point 1256°F (680°C) estimated
Initial boiling point and boiling range Not available.
Flash point Not available.
Evaporation Rate Not available.
Flammability (solid, gas) Not available.
Upper/lower flammability
Flammability limit-lower (%) Not applicable.
Flammability limit-upper (%) Not applicable.

Vapor pressure	0 hPa estimated.
Vapor Density (Air=1)	Not available.
Relative density	Not available.
Solubility	50% estimated
Partition coefficient (n-octanol/water)	Not available.
Decomposition temperature	Not available.
Auto-ignition temperature	Not available.
Viscosity	Not available.
Other information	
Bulk density	88 – 92 lb/ft^3 (typical)

10. Stability and reactivity

Reactivity	This product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	During combustion: Metal oxides. Sulfur oxides.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Harmful if swallowed.
Inhalation	Due to lack of data the classification is not possible.
Skin contact	Prolonged or repeated skin contact may cause irritation.
Eye contact.	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if swallowed. Harmful in contact with skin.

Components	Species	Test Results
Zinc Sulfate, Monohydrate (CAS 7446-19-7)		
Acute		
Dermal		
LD50	Rat	>2000 mg/kg
Oral		
LD50	Mouse	57 mg/kg
	Rat	623 mg/kg
Other		
LD50	Mouse	71.7 mg/kg
	Rat	40 mg/kg
Manganese Sulfate, Monohydrate (CAS 10034-96-5)		
Acute		
Oral		
LD100	Mouse	305 mg/kg
Other		
LD100	Mouse	146 mg/kg
LD50	Mouse	64 mg/kg

Components	Species	Test Results
Ferrous Sulfate, Monohydrate (CAS 17375-41-6)		
Acute		
Dermal		
LD50	Rat	155 mg/kg
Oral		
LD50	Mouse	1520 mg/kg
	Rat	319 mg/kg
Other		
LD50	Mouse	65 mg/kg
	Dog	79 mg/kg
Sodium Tetraborate, Decahydrate (CAS 1303-96-4)		
Acute		
Oral		
LD50	Mouse	2 gm/kg
	Rat	2660 mg/kg
Copper Sulfate, Pentahydrate (CAS 7758-99-8)		
Acute		
Dermal		
LD50	Rabbit	>8 g/kg
Oral		
LD50	Rat	>472.5 mg/kg

Skin corrosion/irritation Due to lack of data the classification is not possible.

Serious eye damage/eye irritation Causes serious eye damage on direct contact.

Respiratory sensitization Due to lack of data the classification is not possible.

Skin sensitization Due to lack of data the classification is not possible.

Germ cell mutagenicity No data available.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity Due to lack of data the classification is not possible.

Specific target organ toxicity-single exposure Due to lack of data the classification is not possible.

Specific target organ toxicity-repeated exposure Due to lack of data the classification is not possible.

Aspiration hazard Due to lack of data the classification is not possible.

Chronic effects Prolonged exposure may cause chronic effects.

Further information No other specific acute or chronic health impact noted.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Components		Species	Test Results
Zinc Sulfate, Monohydrate (CAS 7446-19-7)			
Aquatic			
Crustacea	EC50	Rotifer (Philodina acuticomis)	0.3 mg/l, 48 hours
Fish	LC50	Rainbow trout, donaldson trout (Oncorhynchus mykiss)	0.162 mg/l, 96 hours

Components		Species	Test Results
Manganese Sulfate, Monohydrate (CAS 10034-96-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	7.09-9.36 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	24.3-38.9 mg/l, 96 hours
Ferrous Sulfate, Monohydrate (CAS 10034-96-5)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	6.15-9.26 mg/l, 48 hours
Fish	LC50	Carp (Cyprinus carpio)	0.56 mg/l, 96 hours
Copper Sulfate, Pentahydrate (CAS 7758-99-8)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	0.182 mg/l, 24 hours
Fish	LC50	Rainbow Trout	0.17 mg/l, 24 hours

Persistence and degradability No data available.

Bioaccumulative potential No data available.

Mobility in soil This product is water soluble and may disperse in soil.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

General Not DOT regulated in domestic (USA ground) transportation in package size less than 2,000 lbs (454 kg). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

DOT

Basic shipping requirements:	
UN number	UN3077
Proper shipping name	Environmentally hazardous substances, solid, n.o.s. (Zinc Sulfate, Monohydrate RQ=2000lbs, Manganese Sulfate, monohydrate, Ferrous Sulfate, Monohydrate RQ=1000lbs, Cupric Sulfate, Pentahydrate RQ=10lbs), MARINE POLLUTANT
Hazard class	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
Special precautions	Read safety instructions, SDS and emergency procedures before handling.
Additional information:	
Special provisions	8, 146, 335, A112, B54, IB8, IP3, N20, T1, TP33
Packing exemptions	155
Packing non bulk	213
Packaging bulk	240
Notes	DOT Shipping Notes: 40 CFR 172.504(f)(9) For Class 9, a CLASS 9 placard is not required for domestic (USA ground) transportation, however shipments with packaging sizes exceeding the Reportable Quantity (RQ) or bulk packaging must be marked with the appropriate identification number on a CLASS 9 placard, an orange panel, or a white square-on-point display configuration as required. Since the Class 9 placard is not required (although it may be used) the hazardous material endorsement is also not required on a Commercial Drivers License.

IATA

UN number	UN3077
UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Zinc Sulfate, Monohydrate, Manganese Sulfate, monohydrate)
Transport hazard class(es)	9
Packing group	III
ERG code	9L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Sulfate, Monohydrate, Manganese Sulfate, monohydrate)
Transport hazard class(es)	9
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F

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

Not established.

General information

Not DOT regulated in domestic (USA ground) transportation in package sizes less than 2,000 lbs (907kg). The DOT transportation information below is for shipments with package sizes equal to or exceeding this value. DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

DOT; IATA; IMDG

Marine pollutant

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Manganese Sulfate, monohydrate (CAS 10034-96-5)

SARA 304 Emergency release notification
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard – No
SARA 302 Extremely hazardous substance	No
SARA 311/312 Hazardous Chemical	Acute Health Hazard

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Manganese Sulfate, monohydrate (CAS 10034-96-5)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance Priority pollutant Bioaccumulative chemical of concern Toxic pollutant
Safe Drinking Water Act (SDWA)	Not regulated.
Food and Drug Administration (FDA)	Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US Massachusetts RTK – Substance List
Zinc Sulfate, Monohydrate (CAS 7446-19-7)
Ferrous Sulfate, Monohydrate (CAS 17375-41-6)
Disodium Tetraborate, Decahydrate (CAS 1303-96-4)
Cupric Sulfate, Pentahydrate (CAS 7758-99-8)

US New Jersey Worker and Community Right-to-Know Act

Zinc Sulfate, Monohydrate (CAS 7446-19-7)	500 lbs
Manganese Sulfate, Monohydrate (CAS 10034-96-5)	500 lbs
Disodium Tetraborate, Decahydrate (CAS 1303-96-4)	
Cupric Sulfate, Pentahydrate (CAS 7758-99-8)	

US Pennsylvania RTK – Hazardous Substances
Zinc Sulfate, Monohydrate (CAS 7446-19-7)
Disodium Tetraborate, Decahydrate (CAS 1303-96-4)
Cupric Sulfate, Pentahydrate (CAS 7758-99-8)

US Rhode Island RTK
Manganese Sulfate, Monohydrate (CAS 10034-96-5)
Ferrous Sulfate, Monohydrate (CAS 17375-41-6)

US California Proposition 65
US – California Proposition 65 – Carcinogens & Reproductive Toxicity (CRT): Listed substances
Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
New Zealand	New Zealand Inventory	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	11-March-201
Revision date	--
Version #	**v1.0** SDS
List of abbreviations	EC50: Effective concentration, 50%. LC50: Lethal concentration, 50%.
References	EPA: Acquire database HSDB® – Hazardous Substances Data Bank IARC Monographs. Overall Evaluation of Carcinogenicity National Toxicology Program (NTP) Report on Carcinogens ACGIH Documentation of the Threshold Limit Value and Biological Exposure Indices
Preparation	The preparation of this MSDS was in accordance with ANSI Z400.1-2010.
Disclaimer	NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet (SDS) and was prepared pursuant to Government regulation(s) that identify specific types of information to be provided. This SDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. Additional information may be needed to evaluate other uses of the product, including use of the product in combination with any materials or in any processes other than those specifically referenced. Information provided herein with respect to any hazards that may be associated with the product is not meant to suggest that use of the product in a given application will necessarily result in any exposure or risk to workers or the general public. No responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product. Purchasers and users assume all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Purchasers and users of the product specifically should advise all of their employees, agents, contractors and customers who will use the product of this (M)SDS.