

1. Identification

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| Product identifier | Relief Max Complete |
| Other means of identification | |
| Product code | 49013MER |
| Recommended use | Agricultural/ Horticultural Use- Micronutrient Fertilizer- Refer to product label. |
| Recommended restrictions | Refer to product label. |
| Manufacturer/Importer/Supplier/Distributor information | |
| Manufacturer | |
| Company name | Acre Master Performance Crop Inputs |
| Address | 101 Brown Street Amenia, ND 58004 United States |
| Telephone | 701-893-6684 |
| Website | |
| E-mail | |
| Contact person | |
| Emergency phone number | 800-222-1222 |

2. Hazard(s) identification

| | | |
|------------------------------|--|-------------|
| Physical hazards | Not classified. | |
| Health hazards | Acute toxicity, oral | Category 4 |
| | Skin corrosion/irritation | Category 2 |
| | Serious eye damage/eye irritation | Category 2A |
| | Reproductive toxicity (the unborn child) | Category 2 |
| Environmental hazards | Hazardous to the aquatic environment, acute hazard | Category 3 |
| | Hazardous to the aquatic environment, long-term hazard | Category 3 |
| OSHA defined hazards | Not classified. | |
| Label elements | | |



| | |
|--------------------------------|---|
| Signal word | Warning |
| Hazard statement | Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Suspected of damaging the unborn child. Harmful to aquatic life. Harmful to aquatic life with long lasting effects. |
| 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. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. |
| Response | If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. |
| Storage | Store locked up. |

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| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | None. |

3. Composition/information on ingredients

Mixtures

| Chemical name | Common name and synonyms | CAS number | % |
|--|--------------------------|------------|-----------|
| Manganese Sulfate, monohydrate | | 10034-96-5 | 5 - < 10* |
| Urea | | 57-13-6 | 5 - < 10* |
| Zinc Sulfate | | 7733-02-0 | 1 - < 3* |
| Boric acid (H3BO3) reaction products with ethanolamine | | 94095-04-2 | < 1* |
| Salicylic acid | | 69-72-7 | < 1* |
| Other components below reportable levels | | | 80 - < 90 |

4. First-aid measures

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| Inhalation | Move to fresh air. Call a physician if symptoms develop or persist. |
| Skin contact | Remove contaminated clothing. Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse. |
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. |
| Ingestion | Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. |
| Most important symptoms/effects, acute and delayed | Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed. |
| General information | IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. |

5. Fire-fighting measures

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| Suitable extinguishing media | Alcohol resistant foam. Powder. Carbon dioxide (CO2). |
| Unsuitable extinguishing media | Do not use water jet as an extinguisher, as this will spread the fire. |
| Specific hazards arising from the chemical | During fire, gases hazardous to health may be formed. |
| Special protective equipment and precautions for firefighters | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| Fire fighting equipment/instructions | Move containers from fire area if you can do so without risk. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. |
| General fire hazards | No unusual fire or explosion hazards noted. |

6. Accidental release measures

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| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
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| Methods and materials for containment and cleaning up | <p>Use water spray to reduce vapors or divert vapor cloud drift. Prevent product from entering drains.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |
| Environmental precautions | Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. |

7. Handling and storage

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| Precautions for safe handling | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. |
| Conditions for safe storage, including any incompatibilities | <p>Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).</p> <p>Store in secured area away from children, feed, and other food products. Store in original container. Store in a well-ventilated area. Storage temperature: 40 F to 100 F.</p> |

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known 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/m3 |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|---|------|------------|----------------------|
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | TWA | 0.1 mg/m3 | Inhalable fraction. |
| | | 0.02 mg/m3 | Respirable fraction. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value | Form |
|---|------|---------|-------|
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | STEL | 3 mg/m3 | Fume. |
| | TWA | 1 mg/m3 | Fume. |

US. Workplace Environmental Exposure Level (WEEL) Guides

| Components | Type | Value | Form |
|--------------------|------|----------|--------------------|
| Urea (CAS 57-13-6) | TWA | 10 mg/m3 | Total particulate. |

Biological limit values

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

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

Individual protection measures, such as personal protective equipment

Eye/face protection

Chemical respirator with organic vapor cartridge and full facepiece.

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| Skin protection | |
| Hand protection | Wear appropriate chemical resistant gloves. |
| Other | Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. |
| Respiratory protection | Chemical respirator with organic vapor cartridge and full facepiece. |
| Thermal hazards | Wear appropriate thermal protective clothing, when necessary. |
| General hygiene considerations | Observe any medical surveillance requirements. Keep away from food and drink. 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. |

9. Physical and chemical properties

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|---|--------------------------------|
| Appearance | Liquid. |
| Physical state | Liquid. |
| Form | Liquid. |
| Color | Amber to Brown. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | 7.4 |
| Melting point/freezing point | 50.54 °F (10.3 °C) estimated |
| Initial boiling point and boiling range | 339.44 °F (170.8 °C) estimated |
| Flash point | 186.0 °F (85.6 °C) estimated |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | Not available. |
| Flammability limit - upper (%) | Not available. |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | 0.07 hPa estimated |
| Vapor density | Not available. |
| Relative density | 1.09 g/cm3 (typical) |
| Solubility(ies) | |
| Solubility (water) | Not available. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | 770 °F (410 °C) estimated |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Explosive properties | Not explosive. |
| Flammability class | Combustible IIIA estimated |
| Oxidizing properties | Not oxidizing. |
| Percent volatile | 58.09 % estimated |
| Pounds per gallon | 9.09 lb/gal (typical) |
| VOC | 16.45 % estimated |

10. Stability and reactivity

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| Reactivity | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| Chemical stability | Material is stable under normal conditions. |

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| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | Avoid temperatures exceeding the flash point. Contact with incompatible materials. |
| Incompatible materials | Strong acids. Strong oxidizing agents. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

Information on likely routes of exposure

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| Inhalation | Prolonged inhalation may be harmful. |
| Skin contact | Causes skin irritation. |
| | Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans. |

Eye contact Causes serious eye irritation.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity Harmful if swallowed.

| Product | Species | Test Results |
|---|---------|--------------------|
| HarvestShield Complete | | |
| <u>Acute</u> | | |
| Dermal | | |
| LD50 | Rat | 73780 mg/kg |
| Inhalation | | |
| LD50 | Rat | 6088 mg/l, 4 hours |
| Oral | | |
| LD50 | Rat | 9736 mg/kg |
| Components | Species | Test Results |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | | |
| <u>Acute</u> | | |
| Oral | | |
| LD50 | Rat | 2150 mg/kg |
| Salicylic acid (CAS 69-72-7) | | |
| <u>Acute</u> | | |
| Dermal | | |
| LD50 | Rat | > 2 g/kg |
| Oral | | |
| LD50 | Rat | 891 mg/kg |
| Urea (CAS 57-13-6) | | |
| <u>Acute</u> | | |
| Oral | | |
| LD50 | Rat | 8471 mg/kg |
| Zinc Sulfate (CAS 7733-02-0) | | |
| <u>Acute</u> | | |
| Dermal | | |
| LD50 | Rat | > 2000 mg/kg |
| Oral | | |
| LD50 | Rat | 920 mg/kg |
| | | 623 mg/kg |

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| Skin corrosion/irritation | Causes skin irritation. |
| Serious eye damage/eye irritation | Causes serious eye irritation. |
| Respiratory or skin sensitization | |
| Respiratory sensitization | Due to partial or complete lack of data the classification is not possible. |
| Skin sensitization | Due to partial or complete lack of data the classification is not possible. |
| Germ cell mutagenicity | Due to partial or complete lack of data the classification is not possible. |
| Carcinogenicity | Due to partial or complete lack of data the classification is not possible. |
| IARC Monographs. Overall Evaluation of Carcinogenicity | |
| Not listed. | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) | |
| Not listed. | |
| US. National Toxicology Program (NTP) Report on Carcinogens | |
| Not listed. | |
| Reproductive toxicity | Suspected of damaging the unborn child. |
| Specific target organ toxicity - single exposure | Due to partial or complete lack of data the classification is not possible. |
| Specific target organ toxicity - repeated exposure | Due to partial or complete lack of data the classification is not possible. |
| Aspiration hazard | Due to partial or complete lack of data the classification is not possible. |
| Chronic effects | Prolonged inhalation may be harmful. May be harmful if absorbed through skin. |
| | Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans. |

12. Ecological information

| Ecotoxicity | | Harmful to aquatic life with long lasting effects. | |
|---|------|--|-----------------------------------|
| Product | | Species | Test Results |
| HarvestShield Complete | | | |
| Aquatic | | | |
| Crustacea | EC50 | Daphnia | 270.4389 mg/l, 48 hours estimated |
| Fish | LC50 | Fish | 435.1049 mg/l, 96 hours estimated |
| Components | | Species | Test Results |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | | | |
| Aquatic | | | |
| Crustacea | EC50 | Water flea (Daphnia obtusa) | 30.8 - 44.1 mg/l, 48 hours |
| Fish | LC50 | Fathead minnow (Pimephales promelas) | 36.9 mg/l, 96 hours |
| | | | 29.7 - 52.7 mg/l, 192 hours |
| Urea (CAS 57-13-6) | | | |
| Aquatic | | | |
| Crustacea | EC50 | Water flea (Daphnia magna) | 3910 mg/l, 48 hours |
| Fish | LC50 | Carp (Leuciscus idus melanotus) | > 10000 mg/l, 48 hours |
| | | Guppy (Poecilia reticulata) | 16200 - 18300 mg/l, 96 hours |
| | | Harlequinfish, red rasbora (Rasbora heteromorpha) | 12000 mg/l, 96 hours |
| | | Mozambique tilapia (Tilapia mossambica) | 590 - 730 mg/l, 96 hours |
| Zinc Sulfate (CAS 7733-02-0) | | | |
| Aquatic | | | |
| Algae | LC50 | Green algae (Chlorella vulgaris) | 5 mg/l, 24 hours |
| Crustacea | EC50 | Amphipod (Crangonyx pseudogracilis) | 15.1 - 24.5 mg/l, 96 hours |
| | | Rotifer (Philodina acuticornis) | 0.5 mg/l, 48 hours |

| Components | Species | Test Results |
|---|--|---|
| Fish | LC50 | Fathead minnow (<i>Pimephales promelas</i>) 10.62 - 11.3 mg/l, 5 days 0.168 - 0.25 mg/l, 96 hours Fish (<i>Lepidocephalichthyes guntea</i>) 76 - 118.8 mg/l, 24 hours |
| Persistence and degradability | No data is available on the degradability of any ingredients in the mixture. | |
| Bioaccumulative potential | | |
| Partition coefficient n-octanol / water (log Kow) | | |
| Salicylic acid | | 2.26 |
| Urea | | -2.11 |
| Mobility in soil | No data available. | |
| Other adverse effects | The product contains volatile organic compounds which have a photochemical ozone creation potential. | |

13. Disposal considerations

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| Disposal instructions | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Waste from residues / unused products | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. |

14. Transport information

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|-------------|-----------------------------------|
| DOT | Not regulated as dangerous goods. |
| IATA | Not regulated as dangerous goods. |
| IMDG | Not regulated as dangerous goods. |

15. Regulatory information

| | | |
|---|--|---------|
| US federal regulations | This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. | |
| Toxic Substances Control Act (TSCA) | | |
| TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) | | |
| Not regulated. | | |
| CERCLA Hazardous Substance List (40 CFR 302.4) | | |
| Manganese Sulfate, monohydrate (CAS 10034-96-5) | | Listed. |
| Zinc Sulfate (CAS 7733-02-0) | | Listed. |
| SARA 304 Emergency release notification | | |
| Not regulated. | | |
| OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) | | |
| Not listed. | | |
| Superfund Amendments and Reauthorization Act of 1986 (SARA) | | |
| SARA 302 Extremely hazardous substance | | |
| Not listed. | | |
| SARA 311/312 Hazardous chemical | Yes | |

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| Classified hazard categories | Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Reproductive toxicity |
|-------------------------------------|---|

SARA 313 (TRI reporting)

| Chemical name | CAS number | % by wt. |
|--------------------------------|------------|----------|
| Manganese Sulfate, monohydrate | 10034-96-5 | 5 - < 10 |
| Zinc Sulfate | 7733-02-0 | 1 - < 3 |

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.

Safe Drinking Water Act (SDWA) Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations

California Proposition 65

WARNING: This product can expose you to chemicals including arsenic, cadmium, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | No |
| Canada | Domestic Substances List (DSL) | No |
| Canada | Non-Domestic Substances List (NDSL) | No |
| China | Inventory of Existing Chemical Substances in China (IECSC) | No |
| Europe | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes |
| Europe | European List of Notified Chemical Substances (ELINCS) | No |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | No |
| New Zealand | New Zealand Inventory | No |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | No |
| Taiwan | Taiwan Chemical Substance Inventory (TCSI) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | No |

*A "Yes" indicates that all components of this product comply 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 12-01-2023

Revision date 04-03-2024

Version # 03

Disclaimer The information provided in this Safety Data Sheet is correct to the best of Manufacturer's knowledge, information and belief at the date of its publication; however, it is provided only as a guidance for safe handling, use, processing, storage, transportation, disposal and release of the Product. No warranties of any kind, either expressed or implied, including warranties of merchantability or fitness for a particular purpose, are made with respect to the Product or the information provided herein, or that the Product or information herein may be used without infringing the intellectual property rights of others. The information provided in this Safety Data Sheet relates only to the specific Product designated and may not be valid if the Product is used in combination with other materials or in any other process, unless specified herein. The user assumes all risk and liability for loss, injury, damage or expense due to any use, handling, storage or disposal of the Product, and Manufacturer recommends that the user conducts its own tests of the Product to determine suitability of the Product for user's particular use.

Revision information Physical and chemical properties: Color