



SAFETY DATA SHEET

Revision Date 14-Jul-2023

WAI1 - AGHS - OSHA

Revision Number 7

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name Optimum Results™ F Reference Filling Solution
Product No 900046
Pure substance/mixture Mixture

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Use as laboratory reagent
Uses advised against No Information available
Manufacturer, Importer, Supplier Thermo Fisher Scientific (Milwaukee) LLC
2202 N. Bartlett Avenue
Milwaukee, WI 523202-1009
USA
Emergency Telephone 24 Hour Emergency Phone Number
CHEMTREC®
Within USA and Canada: 1-800-424-9300
Outside USA and Canada: 1-703-527-3887
(collect calls accepted)
E-mail address info.water@thermo.com
Made in USA

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

None

Label Elements

Emergency Overview

Warning

Hazard Statements

Very toxic to aquatic life

Toxic to aquatic life with long lasting effects



Appearance Clear

Physical State Liquid

Odor None

Precautionary Statements

Prevention

Avoid release to the environment

Spills

Collect spillage

Storage

Store in a closed container

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

No information available

Other Information

Very toxic to aquatic organisms

Toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Water	7732-18-5	70 - 80%
Ammonium Sulfate	7783-20-2	20 - 30%
Sodium Chloride	7647-14-5	<0.1%

Silver Chloride	7783-90-6	<0.1%
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*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General Advice	Use first aid treatment according to the nature of the injury. Get medical attention immediately if symptoms occur. Show this safety data sheet to the doctor in attendance.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.
Self-Protection of the First Aider	No special precautions required.

Most important symptoms and effects, both acute and delayed

Most important symptoms and effects	None reasonably foreseeable
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

No information available

Specific Hazards Arising from the Chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None

Sensitivity to Static Discharge None

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	Should not be released into the environment. See Section 12 for additional Ecological Information. Vapors may accumulate to form explosive concentrations.

Methods and Material for Containment and Cleaning Up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling	Wear personal protective equipment/face protection Ensure adequate ventilation Avoid contact with skin, eyes or clothing Avoid ingestion and inhalation
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Conditions for Safe Storage, Including any Incompatibilities

Storage	Keep container tightly closed in a dry and well-ventilated place Store at room temperature in the original container Protect from direct sunlight
Incompatible Products	No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH - National Institute for Occupational Safety and Health

Appropriate engineering controls

Engineering Measures	None under normal use conditions
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Individual protection measures, such as personal protective equipment

Eye/face Protection	Wear chemical splash goggles and face shield. If splashes are likely to occur. Face protection shield.
Skin and Body Protection	Wear protective gloves/protective clothing.
Respiratory Protection	None under normal use conditions. In case of inadequate ventilation wear respiratory protection.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	None
Odor Threshold	No information available

pH 6.5
pH Range 5.0 - 8.0

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point/freezing point	No information available	
Boiling Point/Range	~ 100 °C / 212 °F	
Flash Point (High in °C)	N/A	
Evaporation Rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	No information available	
Vapor Density	No information available	
Specific Gravity	No information available	
Water Solubility	Soluble in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition Temperature	-	
Decomposition Temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive Properties	No information available	
Oxidizing Properties	No information available	

Other Information

Softening Point No information available
Molecular Weight No information available
VOC Content(%) No information available
Density No Information available
Bulk Density No information available

10. STABILITY AND REACTIVITY

Reactivity

No Information available

Chemical Stability

Stable under normal conditions

Possibility of Hazardous Reactions

None under normal processing

Conditions to Avoid

Extremes of temperature and direct sunlight.

Incompatible Materials

No information available

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	No information available
Eye Contact	No information available
Skin Contact	No information available
Ingestion	No information available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water 7732-18-5	LD50 > 90 mL/kg (Rat)	-	-
Ammonium Sulfate 7783-20-2	LD50 = 2840 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	-
Sodium Chloride 7647-14-5	LD50 = 3 g/kg (Rat)	LD50 > 10000 mg/kg (Rabbit)	LC50 > 42 mg/L (Rat) 1 h

Information on Toxicological Effects

Symptoms No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available

Mutagenic Effects No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed
Ammonium Sulfate	7783-20-2	Not listed	Not listed	Not listed	Not listed
Sodium Chloride	7647-14-5	Not listed	Not listed	Not listed	Not listed
Silver Chloride	7783-90-6	Not listed	Not listed	Not listed	Not listed

Reproductive Effects No information available

STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard No information available

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 55762 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects

Component	Freshwater Algae	Freshwater Fish	Water Flea
Ammonium Sulfate 7783-20-2	-	LC50: = 18 mg/L, 96h (Cyprinus carpio) LC50: 32.2 - 41.9 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 5.2 - 8.2 mg/L, 96h static (Oncorhynchus mykiss) LC50: > 100 mg/L, 96h (Pimephales promelas) LC50: 123 - 128 mg/L, 96h	LC50: = 14 mg/L, 48h (Daphnia magna)

		semi-static (Poecilia reticulata) LC50: = 126 mg/L, 96h (Poecilia reticulata) LC50: = 420 mg/L, 96h semi-static (Brachydanio rerio) LC50: = 250 mg/L, 96h (Brachydanio rerio) LC50: = 480 mg/L, 96h flow-through (Brachydanio rerio)	
Sodium Chloride 7647-14-5	-	LC50: 6420 - 6700 mg/L, 96h static (Pimephales promelas) LC50: 4747 - 7824 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 6020 - 7070 mg/L, 96h static (Pimephales promelas) LC50: = 12946 mg/L, 96h static (Lepomis macrochirus) LC50: 5560 - 6080 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 7050 mg/L, 96h semi-static (Pimephales promelas)	EC50: 340.7 - 469.2 mg/L, 48h Static (Daphnia magna) EC50: = 1000 mg/L, 48h (Daphnia magna)

Persistence and Degradability

No information available

Bioaccumulation/ Accumulation

No information available

Mobility

Component	log Pow
Ammonium Sulfate 7783-20-2	-5.1

Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Methods Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Improper disposal or reuse of this container may be dangerous and illegal

Component	CAWAST
Silver Chloride 7783-90-6	Toxic

14. TRANSPORT INFORMATION

DOT

UN-No UN3082
Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s.
Technical Name Silver Nitrate
Hazard Class 9
Packing Group III

Reportable Quantity (RQ): (Silver Nitrate: RQ (kg)= 0.454)
Special Provisions 8, 146, 173, 335, IB3, T4, TP1, TP29
Shipping Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver Nitrate), 9, III, Marine Pollutant
Emergency Response Guide Number 171

ICAO

UN-No UN3082
Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s.
Technical Name Silver Nitrate
Hazard Class 9
Packing Group III
Special Provisions A97, A158, A197
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver Nitrate), 9, III

IATA

UN-No UN3082
Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s.
Technical Name Silver Nitrate
Hazard Class 9
Packing Group III
ERG Code 9L
Special Provisions A97, A158, A197
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver Nitrate), 9, III

IMDG/IMO

UN-No UN3082
Proper Shipping Name Environmentally hazardous substances, liquid, n.o.s.
Technical Name Silver Nitrate
Hazard Class 9
Packing Group III
EmS No. F-A, S-F
Special Provisions 274, 335, 969
Description UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver Nitrate), 9, III, Marine Pollutant

15. REGULATORY INFORMATION

International Inventories

United States of America Inventory Complies
CANINV Complies
EINECS/ELINCS Complies
ENCS Complies
IECSC Complies
KECL Complies
PICCS Complies
AICS Complies

Legend:

USINV/ TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
CANINV/ DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japanese Existing and New Chemical Substances
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

U.S. Federal Regulations

SARA 313

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications. Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 calendar year will need to be consistent with updated hazard classifications.

CWA (Clean Water Act)

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Silver Chloride 7783-90-6	-	X	-	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

U.S. State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	New Jersey	Massachusetts	Pennsylvania
Water 7732-18-5	-	-	X
Ammonium Sulfate 7783-20-2	-	X	X
Silver Chloride 7783-90-6	X	-	X

U.S. EPA Label Information

No information available

16. OTHER INFORMATION

Prepared By Regulatory Affairs
Prepared For Thermo Fisher Scientific Inc.©
Issue Date No information available
Revision Date 14-Jul-2023
Reason for revision SDS sections updated.

Disclaimer

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Product Name

Optimum Results™ F Reference Filling Solution

Revision Date14-Jul-2023

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End of Safety Data Sheet