

SAFETY DATA SHEET

Creation Date 15-Feb-2010

Revision Date 25-Apr-2019

Revision Number 5

Hydrochloric Acid Solution, 0.5N (Certified)

Revision Date 25-Apr-2019



1. Identification

Product Name Hydrochloric Acid Solution, 0.5N (Certified)

Cat No. : SA50-1; SA50-4; SA50-20; XXS SA5020L; NC1531522;
XXLMHCL55GAL; NC0831405

Synonyms

Muriatic acid solution; Hydrogen chloride solution

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or bioocidal product use.
Details of the supplier of the safety data sheet

Company:
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTRAC® Inside the USA: 800-424-9300
CHEMTRAC® Outside the USA: 001-703-527-3887

2. Hazard(s) identification

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

Corrosive to metals
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation

Category 1
Category 2
Category 2

Label Elements

Signal Word

Warning

Hazard Statements

May be corrosive to metals
Causes skin irritation
Causes serious eye irritation

Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Eyes
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

Spills
Absorb spillage to prevent material damage

Storage
Store in corrosive resistant polypropylene container with a resistant liner
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

| Component | CAS No | Weight % |
|-------------------|-----------|----------|
| Water | 7732-18-5 | > 98 |
| Hydrochloric acid | 7647-01-0 | < 2.0 |

4. First-aid measures

General Advice If symptoms persist, call a physician.

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. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable, use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

Flash Point Method - Not applicable
No information available

Aut ignition Temperature No information available

Explosion Limits No data available
Lower No information available
Upper No information available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride gas.

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.

MEPA Health 2 Flammability 0 Instability 0 Physical hazards N/A

6. Accidental release measures

Personal Precautions
Use personal protective equipment as required. Ensure adequate ventilation. Should not be released into the environment. See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

| Exposure Guidelines | | | | |
|---------------------|----------------|--|--|------------------|
| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
| Hydrochloric acid | Ceiling: 2 ppm | Ceiling: 5 ppm Ceiling: 7 mg/m ³ (Vapored) Ceiling: 5 ppm (Vapored) Ceiling: 7 mg/m ³ | IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³ | Ceiling: 2 ppm |

Legend

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

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/Face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|--|--------------------------|
| Physical State | Liquid |
| Appearance | Clear |
| Odor | No information available |
| Odor Threshold | No information available |
| pH | 0-10 (1N) |
| Melting Point/Range | No data available |
| Boiling Point/Range | No information available |
| Flash Point | Not applicable |
| Evaporation Rate | No information available |
| Flammability (solid, gas) | Not applicable |
| Flammability or explosive limits | No data available |
| Upper | No data available |
| Lower | No information available |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Specific Gravity | No information available |
| Solubility | Soluble in water |
| Partition coefficient: n-octanol/water | No data available |
| Aut ignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Viscosity | No information available |
| Molecular Formula | HCl |
| Molecular Weight | 36.46 |

10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Incompatible products. Excess heat.

Incompatible Materials
Metals, Reducing Agent, Aldehydes, Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride gas

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. Toxicological information

Acute Toxicity

| CWA (Clean Water Act) Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---------------------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Hydrochloric acid | X | 5000 lb | - | - |

| Clean Air Act Component | HAPS Data | Class 1 Ozone Depleters | Class 2 Ozone Depleters |
|-------------------------|-----------|-------------------------|-------------------------|
| Hydrochloric acid | X | - | - |

OSHA - Occupational Safety and Health Administration Not applicable

| Component | Specifically Regulated Chemicals | Highly Hazardous Chemicals |
|-------------------|----------------------------------|----------------------------|
| Hydrochloric acid | - | TO, 5000 lb |

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)

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|-------------------|--------------------------|----------------|
| Hydrochloric acid | 5000 lb | 5000 lb |

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-------------------|---------------|------------|--------------|----------|--------------|
| Water | - | - | X | - | - |
| Hydrochloric acid | X | X | X | X | X |

U.S. Department of Transportation Reportable Quantity (RQ):
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
 Legend - STOs = Screening Threshold Quantities, APA = A placarded amount

| Component | DHS Chemical Facility Anti-Terrorism Standard |
|-------------------|---|
| Hydrochloric acid | Release STOs - 15000lb (concentration >=37%) Release STOs - 5000lb (anhydrous) Threat STOs - 5000lb (anhydrous) |

Mexico - Grade No information available

16. Other Information

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
 Email: EMSDS.RA@thermofisher.com

Creation Date 15-Feb-2010
 Revision Date 25-Apr-2019
 Print Date 25-Apr-2019
 Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). SDS sections updated: 2.

Disclaimer
 The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Creation Date 15-Feb-2010

Revision Date 25-Apr-2019

Revision Number 5

Hydrochloric Acid Solution, 0.1N (Certified)

Revision Date 25-Apr-2019



1. Identification

Product Name Hydrochloric Acid Solution, 0.1N (Certified)

Cat No. : SAS4-1; SAS4-4; SAS4-10; SAS4-20; T000541000

Synonyms Muriatic acid solution; Hydrogen chloride solution

Recommended Use Laboratory chemicals;
Uses advised against Food, drug, pesticide or bioocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) Identification

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

Corrosive to metals
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation

Category 1
Category 2
Category 2

Label Elements

Signal Word
Warning

Hazard Statements
May be corrosive to metals
Causes skin irritation
Causes serious eye irritation

Precautionary Statements

Prevention Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Skin IF ON SKIN: Wash with plenty of soap and water

IF SKIN IRRITATION OCCURS: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Eyes 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

Spills Absorb spillage to prevent material damage

Storage Store in corrosive resistant polypropylene container with a resistant liner

Hazards not otherwise classified (HNOC)

None identified

3. Composition/Information on Ingredients

| Component | CAS-No | Weight % |
|-------------------|-----------|----------|
| Water | 7732-18-5 | > 98 |
| Hydrochloric acid | 7647-01-0 | <2.0 |

4. First-aid measures

General Advice If symptoms persist, call a physician.

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. If skin irritation persists, call a physician.

Inhalation Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable, use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media No information available

| | |
|----------------------------------|--------------------------|
| Flash Point | Not applicable |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | No data available |
| Upper | No data available |
| Lower | No information available |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Non-combustible; substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) Hydrogen chloride gas

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.

| | | | |
|-------------|---|------------------|-----|
| NFPA | | | |
| Health | 2 | Flammability | 0 |
| | | Instability | 0 |
| | | Physical hazards | N/A |

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|-------------------|----------------|--|--|------------------|
| Hydrochloric acid | Ceiling: 2 ppm | Ceiling: 5 ppm Ceiling: 7 mg/m ³ (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m ³ | IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³ | Ceiling: 2 ppm |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Long sleeved clothing.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|---|--------------------------|
| Physical State | Liquid |
| Appearance | Clear |
| Odor | No information available |
| Odor Threshold | No information available |
| pH | 0.10 (1N) |
| Melting Point/Range | No data available |
| Boiling Point/Range | No information available |
| Flash Point | Not applicable |
| Evaporation Rate | No information available |
| Flammability (solid, gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | No data available |
| Lower | No data available |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Specific Gravity | No information available |
| Solubility | Soluble in water |
| Partition coefficient: n-octanol/water | No data available |
| Autoignition Temperature | No information available |
| Decomposition Temperature | No information available |
| Viscosity | No information available |
| Molecular Formula | HCl |
| Molecular Weight | 36.46 |

10. Stability and reactivity

Reactive Hazard
None known, based on information available

Stability
Stable under normal conditions.

Conditions to Avoid
Incompatible products. Excess heat.

Incompatible Materials
Metals. Oxidizing agents. Reducing agents. Aldehydes

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride gas

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. Toxicological information**Acute Toxicity****Product Information**

Hydrochloric Acid Solution, 0.1N (Certified)

Revision Date 25-Apr-2019

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
 Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
 Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 200 mg/l.

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------|-------------------------|-------------------------|-----------------------|
| Hydrochloric acid | 238 - 277 mg/kg (Rat) | Not listed | Not listed |
| | | > 5010 mg/kg (Rabbit) | 1.68 mg/L (Rat) 1 h |

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

Irritation
 Irritating to eyes and skin

Sensitization
 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 | Mexico |
|-------------------|-----------|------------|------------|------------|------------|------------|
| Water | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Hydrochloric acid | 7647-01-0 | Not listed | Not listed | Not listed | Not listed | Not listed |

(IARC: International Agency for Research on Cancer)
(ACGIH: International Agency for Research on Humans)
(OSHA: Occupational Safety and Health)
(Mexico: Group 2A - Probably Carcinogenic to Humans, Group 2B - Possibly Carcinogenic to Humans)

Mutagenic Effects
 Mutagenic effects have occurred in microorganisms.

Reproductive Effects
 No information available.

Developmental Effects
 No information available.

Teratogenicity
 No information available.

STOT - single exposure
 None known

STOT - repeated exposure
 None known

Aspiration hazard
 No information available

Symptoms / effects, both acute and delayed
 No information available

Endocrine Disruptor Information
 No information available

Other Adverse Effects
 The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity
 Do not empty into drains .

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|-------------------|------------------|--|----------|----------------------------|
| Hydrochloric acid | - | 282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leuciscus idus | - | 56mg/L EC50 72h Daphnia |

Persistence and Degradability
 Soluble in water. Persistence is unlikely based on information available.

Bioaccumulation / Accumulation
 No information available.

Mobility
 Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Hydrochloric Acid Solution, 0.1N (Certified)

Revision Date 25-Apr-2019

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

| | |
|----------------------|-------------------|
| DOT | |
| UN-No | UN1789 |
| Proper Shipping Name | HYDROCHLORIC ACID |
| Hazard Class | 8 |
| Packing Group | III |
| TDG | |
| UN-No | UN1789 |
| Proper Shipping Name | HYDROCHLORIC ACID |
| Hazard Class | 8 |
| Packing Group | III |
| IATA | |
| UN-No | UN1789 |
| Proper Shipping Name | HYDROCHLORIC ACID |
| Hazard Class | 8 |
| Packing Group | III |
| IMDG/IMO | |
| UN-No | UN1789 |
| Proper Shipping Name | HYDROCHLORIC ACID |
| Hazard Class | 8 |
| Packing Group | III |

15. Regulatory Information

United States of America Inventory

| Component | CAS-No | TSCA | TSCA Inventory notification - Active/Inactive | TSCA - EPA Regulatory Flags |
|-------------------|-----------|------|--|--------------------------------|
| Water | 7732-18-5 | | X | |
| Hydrochloric acid | 7647-01-0 | | X | |

Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)
 X - Listed
 - - Not Listed

TSCA 12(p) - Notices of Export Not applicable

International Inventories
 Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSO), Korea (ECL).

| Component | CAS-No | DSL | NDSL | EINECS | PICCS | ENCS | AICS | IECSO | KECI |
|-------------------|-----------|-----|------|-----------|-------|------|------|-------|----------|
| Water | 7732-18-5 | X | - | 231-791-2 | X | - | X | X | KE-35400 |
| Hydrochloric acid | 7647-01-0 | X | - | 231-595-7 | X | X | X | X | KE-20189 |

U.S. Federal Regulations

| SARA 313 | Component | CAS-No | Weight % | SARA 313 - Threshold Values % |
|----------|-------------------|-----------|----------|----------------------------------|
| | Hydrochloric acid | 7647-01-0 | <2.0 | 1.0 |

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act)

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Hydrochloric acid | X | 5000 lb | - | - |

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-------------------|-----------|-------------------------|-------------------------|
| Hydrochloric acid | X | - | - |

OSHA - Occupational Safety and Health Administration

| Component | Specifically Regulated Chemicals | Highly Hazardous Chemicals |
|-------------------|----------------------------------|----------------------------|
| Hydrochloric acid | - | TC: 5000 lb |

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)

| Component | Hazardous Substances RQS | CERCLA EHS RQS |
|-------------------|--------------------------|----------------|
| Hydrochloric acid | 5000 lb | 5000 lb |

California Proposition 65

| Component | Hazardous Substances RQS | CERCLA EHS RQS |
|-------------------|--------------------------|----------------|
| Hydrochloric acid | 5000 lb | 5000 lb |

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-------------------|---------------|------------|--------------|----------|--------------|
| Water | - | - | X | - | - |
| Hydrochloric acid | X | X | X | X | X |

U.S. Department of Transportation
 Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product contains the following DHS chemicals:
 Legend - STOs = Screening Threshold Quantities, APA = A placarded amount

| Component | DHS Chemical Facility Anti-Terrorism Standard |
|-------------------|---|
| Hydrochloric acid | Release STOs - 15000lb (concentration >=37%) Release STOs - 5000lb (anhydrous) Their STOs - 500lb (anhydrous) |

Other International Regulations
 Mexico - Grade No information available

16. Other Information

Prepared By
 Regulatory Affairs
 Thermo Fisher Scientific
 Email: EWSDS,RA@thermofisher.com

Creation Date 15-Feb-2010
 Revision Date 25-Apr-2019
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End of SDS