



SAFETY DATA SHEET

SOLUS MCA42

1. Product and Company Identification

Material name SOLUS MCA42
Version # 1.1
Revision date 11/02/2014
Supersedes date 19/12/2013
CAS # Mixture
Product application Internal boiler water treatment

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazards Identification

Emergency overview

DANGER -- CORROSIVE
Corrosive to skin. Absorbed by skin. Potential skin sensitizer. Corrosive to the eyes. Repeated exposure may result in respiratory sensitization. May cause irritation to mucous membranes. Corrosive to aluminum.

Potential health effects

Eyes Corrosive to eyes
Skin Primary route of exposure. Corrosive to skin Potential sensitizer to the skin. May be absorbed by skin.
Inhalation Primary route of exposure May cause irritation to mucous membranes. Repeated exposure may result in respiratory sensitization.
Ingestion Ingestion may cause gastrointestinal irritation with possible nausea, vomiting, diarrhea, mental confusion, dizziness and lethargy.

Target organs

Prolonged or repeated exposures may cause tissue necrosis and/or skin sensitization.

Signs and symptoms

May cause nasal, respiratory and mucous membrane irritation, possibly leading to abdominal cramps, nausea and vomiting.

Medical conditions aggravated by exposure

Asthma

3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
Potassium sulfite	10117-38-1	10 - 20
2-Diethylaminoethanol	100-37-8	2.5 - 10
Non-hazardous components	CAS #	
Water	7732-18-5	

Composition comments

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact	URGENT! Immediately flush eyes with water for 30 minutes while removing contact lenses. Keep eyelids apart. Get medical attention immediately.
Skin contact	URGENT ! Wash thoroughly with soap and water for at least 30 minutes. Take off contaminated clothing and wash before reuse. Get medical attention immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Seek medical attention.
Ingestion	Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Immediately contact a physician. If vomiting occurs naturally have victim lean forward to reduce risk of aspiration.

Notes to physician No other instruction than the ones already informed.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media Carbon dioxide, dry chemicals, foam, water spray (fog).

Protection of firefighters

Specific hazards arising from the chemical Corrosive liquid.

Protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions Not available.

Hazardous combustion products Oxides of carbon Oxides of nitrogen. Oxides of sulphur. Oxides of phosphorus

6. Accidental Release Measures

Personal precautions Corrosive to skin and eyes. Alkaline. Avoid contact with spilled material. See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions Prevent from entering sewers or the immediate environment. Accidental release of large quantities into the aquatic environment may harm aquatic organisms. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

Methods for containment Stop leak if you can do so without risk. Dike the spilled material, where this is possible.

Methods for cleaning up Contain and recover by physical means. Clean with water. Wet area may be slippery. Spread sand/grit.

7. Handling and Storage

Handling Corrosive to skin or eyes. Alkaline. Do not mix with acidic material.

Storage Store containers closed when not in use. Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Store in dry, cool, well ventilated area. Keep away from strong acids and oxidizers.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	TWA	2 ppm

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

Components	Type	Value
2-Diethylaminoethanol (CAS 100-37-8)	PEL	50 mg/m ³
		10 ppm

Exposure guidelines

US. ACGIH Threshold Limit Values

2-Diethylaminoethanol (CAS 100-37-8) Can be absorbed through the skin.

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

2-Diethylaminoethanol (CAS 100-37-8)

Can be absorbed through the skin.

Engineering controls	Adequate ventilation to maintain air contaminants below exposure limits.
Personal protective equipment	
Eye / face protection	Splash proof chemical goggles. Face shield.
Skin protection	Gauntlet-type rubber, butyl or neoprene gloves. Chemical resistant apron. Wash off after each use. Replace as necessary.
Respiratory protection	If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

9. Physical & Chemical Properties

Appearance

Physical state	Liquid
Color	Colorless to yellow
Odor	Amine
pH (concentrated product)	11.1
pH in aqueous solution	10.8 (5% SOL.)
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Solubility (water)	100 %
Specific gravity (70°F, 21°C)	1.104
Evaporation rate	< 1 (Ether = 1)
Viscosity	12 cps
Viscosity temperature	70 °F (21 °C)
Percent volatile	7 (Estimated)
Pour point	26 °F (-3 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Protect from freezing.
Incompatible materials	Avoid contact with strong acids and oxidisers.
Hazardous decomposition products	Oxides of carbon, nitrogen, phosphorus, and sulphur evolved in fire.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
SOLUS MCA42 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	> 5 mg/l, 4 Hour, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
2-Diethylaminoethanol (CAS 100-37-8)		
Acute		
<i>Dermal</i>		
LD50	Guinea Pig	885 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 4.5 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1300 mg/kg
Sensitization	May cause sensitization by inhalation and skin contact.	
Acute effects	Causes severe skin burns and eye damage.	
Skin corrosion/irritation	Corrosive to skin and eyes.	

12. Ecological Information

Ecotoxicity

Product	Species	Test Results	
SOLUS MCA42 (CAS Mixture)			
	LC50	Fathead Minnow	> 5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
Crustacea	LC50	Daphnia magna	1557 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	625 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
Other	LC50	Rainbow Trout	> 5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)

13. Disposal Considerations

Disposal instructions	According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.
Contaminated packaging	According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN2735
Proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. (DIETHYLAMINOETHANOL SOLUTION)
Hazard class	8
Packing group	II

Additional information:

ERG code	153
Some containers may be DOT exempt, please check BOL for exact container classification.	

TDG

UN number	UN2735
UN proper shipping name	AMINES, LIQUID, CORROSIVE, N.O.S. (DIETHYLAMINOETHANOL)
Hazard class	8
Packing group	II
ERG code	153

IATA

UN number	UN2735
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UN proper shipping name AMINES, LIQUID, CORROSIVE, N.O.S. (DIETHYLAMINOETHANOL)
 Transport hazard class(es) 8
 Packing group II

IMDG

UN number UN2735
 UN proper shipping name AMINES, LIQUID, CORROSIVE, N.O.S. (DIETHYLAMINOETHANOL SOLUTION)
 Transport hazard class(es) 8
 Packing group II

DOT



IATA; IMDG; TDG



15. Regulatory Information

US federal regulations

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

None listed.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity

None listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
 Immediate Hazard - Yes
 Delayed Hazard - Yes
 Fire Hazard - No
 Pressure Hazard - No
 Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical Yes

Inventory status

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

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

1,4-DIOXANE (CAS 123-91-1)

Listed: January 1, 1988 Carcinogenic.

ACETALDEHYDE (CAS 75-07-0)

Listed: April 1, 1988 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

US - Massachusetts RTK - Substance List

2-Diethylaminoethanol (CAS 100-37-8)

US - New Jersey RTK - Substances: Listed substance

2-Diethylaminoethanol (CAS 100-37-8)

Listed.

US - Pennsylvania RTK - Hazardous Substances

2-Diethylaminoethanol (CAS 100-37-8)

Listed.

US - Rhode Island RTK

Not regulated.

16. Other Information

List of abbreviations

CAS: Chemical Abstract Service Registration Number

TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

ACGIH: American Conference of Governmental Industrial Hygienists

NOEL: No Observed Effect Level

STEL: Short Term Exposure Limit

LC50: Lethal Concentration, 50%

TWA: Time Weighted Average

BOD: Biochemical Oxygen Demand

COD: Chemical Oxygen Demand

TOC: Total Organic Carbon

IATA: International Air Transport Association

IMDG: International Maritime Dangerous Goods Code

LD50: Lethal Dose, 50%

NFPA: National Fire Protection Association

HMIS® ratings

Health: 3*

Flammability: 1

Physical hazard: 0

NFPA ratings

Health: 3

Flammability: 1

Instability: 0

Prepared by

This MSDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).