

SAFETY DATA SHEET

C7 Heating System Biocide 500ml

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name C7 Heating System Biocide 500ml
Product number 570913

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

Identified uses Domestic central heating additive (biocide)
Uses advised against Not suitable for use in PRIMATIC single feed cylinders.

1.3. Details of the supplier of the safety data sheet

Supplier CALEFFI S.p.A.
 S.R. 229, N.25
 Italy / 28010 / Fontaneto d'Agogna (NO)
 T: +39 0322 8491
 F: +39 0322 863305
 E: SDS@Lettergold.co.uk

Manufacturer Lettergold Water Treatment Solutions LLP
 Unit 4 Hammond Close
 Newmarket
 CB8 0AZ
 T: +44 1638 666 888
 F: +44 1638 666 999
 E: SDS@Lettergold.co.uk

1.4. Emergency telephone number

Emergency telephone +44 (0)845 880 60 50

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified
Health hazards Eye Irrit. 2 - H319
Environmental hazards Aquatic Acute 1 - H400

2.2. Label elements

Hazard pictograms



Signal word Warning

Hazard statements H319 Causes serious eye irritation.
 H400 Very toxic to aquatic life.

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Precautionary statements	P102 Keep out of reach of children.
	P264 Wash contaminated skin thoroughly after handling.
	P273 Avoid release to the environment.
	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313 If eye irritation persists: Get medical advice/ attention.
	P501 Dispose of contents/ container in accordance with national regulations.

Supplementary precautionary statements P391 Collect spillage.

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Bronopol (INN)	2.5 - <3%
CAS number: 52-51-7	EC number: 200-143-0
M factor (Acute) = 10	
Classification	
Acute Tox. 4 - H302	
Acute Tox. 4 - H312	
Skin Irrit. 2 - H315	
Eye Dam. 1 - H318	
STOT SE 3 - H335	
Aquatic Acute 1 - H400	

The full text for all hazard statements is displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt.
Ingestion	Rinse mouth thoroughly with water. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Do not induce vomiting unless under the direction of medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person.
Skin contact	Remove affected person from source of contamination. Wash skin thoroughly with soap and water.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 10 minutes.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.

4.2. Most important symptoms and effects, both acute and delayed

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General information	See Section 11 for additional information on health hazards. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	The product is considered to be a low hazard under normal conditions of use. Prolonged inhalation of high concentrations may damage respiratory system.
Ingestion	Gastrointestinal symptoms, including upset stomach.
Skin contact	Prolonged contact may cause dryness of the skin.
Eye contact	Irritating to eyes.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
Specific treatments	No special treatment required.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours. Carbon dioxide (CO₂). Carbon monoxide (CO). Nitrous gases (NO_x).

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours. Evacuate area. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Keep unnecessary and unprotected personnel away from the spillage. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet. Wash thoroughly after dealing with a spillage.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Wear protective clothing as described in Section 8 of this safety data sheet. Reuse or recycle products wherever possible. Absorb spillage to prevent material damage. Flush contaminated area with plenty of water. Dispose of contents/container in accordance with national regulations. Wash thoroughly after dealing with a spillage.

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6.4. Reference to other sections

Reference to other sections For personal protection, see Section 8. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Keep out of the reach of children. Read and follow manufacturer's recommendations. Keep away from food, drink and animal feeding stuffs. Wear protective clothing as described in Section 8 of this safety data sheet. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use.

Advice on general occupational hygiene Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Wash at the end of each work shift and before eating, smoking and using the toilet. Change work clothing daily before leaving workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store away from incompatible materials (see Section 10). Store in tightly-closed, original container in a dry, cool and well-ventilated place. Store at temperatures above 5°C.

Storage class Unspecified storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Ingredient comments No exposure limits known for ingredient(s).

8.2. Exposure controls

Protective equipment



Appropriate engineering controls Provide adequate ventilation. Good general ventilation should be adequate to control worker exposure to airborne contaminants.

Eye/face protection Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with European Standard EN166. The following protection should be worn: Chemical splash goggles.

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374. Wear protective gloves made of the following material: Nitrile rubber. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

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Hygiene measures	Provide eyewash station and safety shower. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Clean equipment and the work area every day. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke.
Respiratory protection	Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Provide adequate ventilation. Large Spillages: If ventilation is inadequate, suitable respiratory protection must be worn.
Environmental exposure controls	Not regarded as dangerous for the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless to pale yellow.
Odour	Mild.
Odour threshold	Not available.
pH	pH (concentrated solution): 3-5
Melting point	Not available.
Initial boiling point and range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.015
Solubility(ies)	Soluble in water.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not applicable.
Explosive properties	Not considered to be explosive.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information	No information required.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	See the other subsections of this section for further details.
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10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No potentially hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.6. Hazardous decomposition products

Hazardous decomposition products Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) Based on available data the classification criteria are not met.

ATE oral (mg/kg) 10,517.24

Acute toxicity - dermal

Notes (dermal LD₅₀) Based on available data the classification criteria are not met.

ATE dermal (mg/kg) 37,931.03

Acute toxicity - inhalation

Notes (inhalation LC₅₀) Based on available data the classification criteria are not met.

Skin corrosion/irritation

Animal data Based on available data the classification criteria are not met.

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye irritation.

Respiratory sensitisation

Respiratory sensitisation Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation Based on available data the classification criteria are not met.

Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Based on available data the classification criteria are not met.

IARC carcinogenicity

Contains a substance which may be potentially carcinogenic. IARC Group 3 Not classifiable as to its carcinogenicity to humans.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

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Reproductive toxicity - development Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Not classified as a specific target organ toxicant after a single exposure.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Not classified as a specific target organ toxicant after repeated exposure.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

General information

No specific health hazards known. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation

The product is considered to be a low hazard under normal conditions of use. Prolonged inhalation of high concentrations may damage respiratory system.

Ingestion

Gastrointestinal symptoms, including upset stomach.

Skin contact

Prolonged contact may cause dryness of the skin.

Eye contact

Irritating to eyes.

Route of exposure

Ingestion Inhalation Skin and/or eye contact

Target organs

No specific target organs known.

Toxicological information on ingredients.

Bronopol (INN)

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 305.0

Species Rat

Notes (oral LD₅₀) REACH dossier information. Harmful if swallowed.

ATE oral (mg/kg) 305.0

Acute toxicity - dermal

Notes (dermal LD₅₀) Harmful in contact with skin.

ATE dermal (mg/kg) 1,100.0

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LC₅₀ ≥ 0.588 mg/l, , Rat 4 hours REACH dossier information.

Skin corrosion/irritation

Animal data Dose: 0.5 g, 4 hours, Rabbit Primary dermal irritation index: 6.2 REACH dossier information. Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Dose: 0.1 ml (0.5%, 2%, 5%), 24 hours, Rabbit REACH dossier information. Eye Dam. 1 - H318 Causes serious eye damage.

Skin sensitisation

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Skin sensitisation	Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. REACH dossier information.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Gene mutation: Negative. REACH dossier information.
Genotoxicity - in vivo	Chromosome aberration: Negative. REACH dossier information.
<u>Carcinogenicity</u>	
Carcinogenicity	Dose level: 7 mg/kg/day, Oral, Rat REACH dossier information.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	One-generation study - NOAEL > 40 mg/kg/day, Oral, Rat P, F1 REACH dossier information.
Reproductive toxicity - development	Maternal toxicity: - LOAEL: 30 mg/kg/day, Oral, Rat REACH dossier information.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity Aquatic Acute 1 - H400 Very toxic to aquatic life.

Ecological information on ingredients.

Bronopol (INN)

Toxicity	Aquatic Acute 1 - H400 Very toxic to aquatic life.
<u>Acute aquatic toxicity</u>	
M factor (Acute)	10
Acute toxicity - fish	LC ₅₀ , 96 days: 35.7 mg/l, Lepomis macrochirus (Bluegill) NOEC, 96 hours: > 20 mg/l, Lepomis macrochirus (Bluegill) REACH dossier information.
Acute toxicity - aquatic invertebrates	EC ₀ , 48 hours: 0.56 mg/l, Daphnia magna EC ₅₀ , 48 hours: 1.4 mg/l, Daphnia magna EC ₁₀₀ , 48 hours: 3.2 mg/l, Daphnia magna REACH dossier information.
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 0.25 mg/l, Skeletonema costatum NOEC, 72 hours: 0.08 mg/l, Skeletonema costatum REACH dossier information.
Acute toxicity - terrestrial	LC ₅₀ , EC ₅₀ , 14 days: > 500 mg/kg, Eisenia Fetida (Earthworm) NOEC, 14 days: 12.8 mg/kg, Eisenia Fetida (Earthworm) REACH dossier information.
Acute toxicity - microorganisms	EC ₂₀ , 150 minutes: 2 mg/l, Activated sludge REACH dossier information.
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - fish early life stage	NOEC, 49 days: 21.5 mg/l, Oncorhynchus mykiss (Rainbow trout) LOEC, 49 days: 40 mg/l, Oncorhynchus mykiss (Rainbow trout) LC ₅₀ , 49 days: 39.1 mg/l, Oncorhynchus mykiss (Rainbow trout) REACH dossier information.

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Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.27 mg/l, Daphnia magna
 LOEC, 21 days: 0.88 mg/l, Daphnia magna
 EC₅₀, 21 days: 0.27 - 0.88 mg/l, Daphnia magna
 REACH dossier information.

12.2. Persistence and degradability

Persistence and degradability The degradability of the product is not known.

Ecological information on ingredients.

Bronopol (INN)

Phototransformation Water - DT₅₀ : 12.1 days, Calculation method.
 Water - Degradation (50%): 2 days
 REACH dossier information.

Stability (hydrolysis) pH4 - Half-life : 120 hours @ 25°C
 pH7 - Half-life : 2.4 hours @ 25°C
 pH9 - Half-life : 2.4 hours @ 25°C
 REACH dossier information.

Biodegradation Water - Degradation (70 - 80%): 28 days
 Water - Degradation (99%): 1 hour
 Water - Half-life : 8.3 minutes
 REACH dossier information.
 The substance is readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not available.

Ecological information on ingredients.

Bronopol (INN)

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Pow: -0.34 - 0.22 REACH dossier information.

12.4. Mobility in soil

Mobility No data available.

Ecological information on ingredients.

Bronopol (INN)

Mobility The product is soluble in water.

Adsorption/desorption coefficient Koc: 5 REACH dossier information. Calculation method.

Henry's law constant 0.00000116 Pa m³/mol @ 25°C REACH dossier information. Calculation method.

Surface tension 72 mN/m @ 20°C REACH dossier information.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

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Ecological information on ingredients.

Bronopol (INN)

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Reuse or recycle products wherever possible. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements.

Disposal methods Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste packaging should be collected for reuse or recycling. Incineration or landfill should only be considered when recycling is not feasible. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of the local water authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	3082
UN No. (IMDG)	3082
UN No. (ICAO)	3082
UN No. (ADN)	3082

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Bronopol (INN))
Proper shipping name (IMDG)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Bronopol (INN))
Proper shipping name (ICAO)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Bronopol (INN))
Proper shipping name (ADN)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CONTAINS Bronopol (INN))

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M6
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

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Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	•3Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(-)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations	Health and Safety at Work etc. Act 1974 (as amended). The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"]. EH40/2005 Workplace exposure limits.
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet	<p>ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.</p> <p>ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.</p> <p>RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.</p> <p>IATA: International Air Transport Association.</p> <p>ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.</p> <p>IMDG: International Maritime Dangerous Goods.</p> <p>CAS: Chemical Abstracts Service.</p> <p>ATE: Acute Toxicity Estimate.</p> <p>LC₅₀: Lethal Concentration to 50 % of a test population.</p> <p>LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).</p> <p>EC₅₀: 50% of maximal Effective Concentration.</p> <p>PBT: Persistent, Bioaccumulative and Toxic substance.</p> <p>vPvB: Very Persistent and Very Bioaccumulative.</p>
Classification abbreviations and acronyms	<p>Eye Irrit. = Eye irritation</p> <p>Aquatic Acute = Hazardous to the aquatic environment (acute)</p>
Key literature references and sources for data	Source: European Chemicals Agency, http://echa.europa.eu/
Classification procedures according to Regulation (EC) 1272/2008	Eye Irrit. 2 - H319: : Calculation method. Aquatic Acute 1 - H400: : Calculation method.
Training advice	Read and follow manufacturer's recommendations. Only trained personnel should use this material.
Revision date	05/10/2018
Revision	5
Supersedes date	14/09/2018
SDS number	8093
Hazard statements in full	<p>H302 Harmful if swallowed.</p> <p>H312 Harmful in contact with skin.</p> <p>H315 Causes skin irritation.</p> <p>H318 Causes serious eye damage.</p> <p>H319 Causes serious eye irritation.</p> <p>H335 May cause respiratory irritation.</p> <p>H400 Very toxic to aquatic life.</p>

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.