SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Bleach

Version 1.1 Print Date 10/08/2017

Revision date / valid from 10/08/17

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

1.1. Product identifier

Trade name	:	Bleach
Code	:	A067,A068,A070,B161
Substance name	:	sodium hypochlorite, solution
Index-No.	:	017-011-00-1
CAS-No.	:	7681-52-9
EC-No.	:	231-668-3
Registration number	:	01-2119488154-34-xxxx

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

Use of the Substance/Mixture	:	Identified use: See table in front of appendix for a complete overview of identified uses.
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	William Clements (Chem) Ltd The Old Transport Museum Witham Street, Belfast, GB BT4 1HP
Telephone	:	+44 (0) 28 9073 8395
Telefax	:	+44 (0) 28 9045 0532
E-mail address	:	info@clementschemicals.com

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (9am-5pm): +44 (0) 28 9073 8395

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin irritation	Category 2	---	H315
Serious eye damage	Category 1	---	H318

Acute aquatic toxicity	Category 1	---	H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	See section 11 for toxicological information.
Physical and chemical hazards	:	See section 9 for physicochemical information.
Potential environmental effects	:	See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :

Signal word : Danger

Hazard statements	:	H314	Causes severe skin burns and eye damage.
		H400	Very toxic to aquatic life.
		H290	May be corrosive to metals.

Precautionary statements

Prevention	:	P273	Avoid release to the environment.
		P280	Wear protective gloves/ eye protection/ face protection.
Response	:	P301 + P330 + P331	I F SWALLOWED: Rinse mouth. Do NOT induce vomiting
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P310	Immediately call a POISON CENTER or doctor/ physician
		P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

Supplemental label information

EUH031 Contact with acids liberates toxic gas.

Hazardous components which must be listed on the label:

• sodium hypochlorite, solution

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.2. Mixture

Chemical nature : sodium hypochlorite
Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)		Classification (67/548/EEC)
		Hazard class / Hazard category	Hazard statements	
sodium hypochlorite, solution				
Index-No. : 017-011-00-1		Met. Corr.1	H290	R31
CAS-No. : 7681-52-9		Skin Corr.1B	H314	Corrosive; C; R34
EC-No. : 231-668-3		Eye Dam.1	H318	Irritant; Xi; R37
Registration : 01-2119488154-34-xxxx	2 - 5	STOT SE3	H335	Dangerous for the
		Aquatic Acute1	H400	environment; N;
		Aquatic Chronic1	H410	R50

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : Take off all contaminated clothing immediately.

If inhaled : Remove to fresh air. If symptoms call a physician.

In case of skin contact : Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

If swallowed : Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. If swallowed, do not induce vomiting - seek medical advice. If a

person vomits when lying on his back, place him in the recovery position.

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

Symptoms : See Section 11 for more detailed information on health effects and symptoms.

Effects : See Section 11 for more detailed information on health effects and symptoms.

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

Treatment : No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

Unsuitable extinguishing media : No information available.

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting : Fire may cause evolution of: Chlorine, Hydrogen chloride gas, chlorine oxides

5.3. Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)

Further information : Cool closed containers exposed to fire with water spray.Heating will cause a pressure rise - with risk of bursting.Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment. Keep people away from and upwind of spill/leak. Provide adequate ventilation. Danger of slipping if spilled Avoid contact with skin and eyes. Do not breathe vapours. For personal protection see section 8.

6.2. Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal. Do not keep the container sealed.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Do not keep the container sealed. Handle and open container with care. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with the skin and the eyes. Do not breathe vapours. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep in an area equipped with alkali resistant flooring. Keep only in the original container. Store in a receptacle equipped with a vent.
Advice on protection against fire and explosion	:	The product is not flammable. Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep in a well-ventilated place. Protect against light. Store in cool place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs. Do not store together with acids and ammonium salts.

7.3. Specific end use(s)

Specific use(s)	:	Identified use: See table in front of appendix for a complete overview of identified uses.

SECTION 8: Exposure controls/personal protection

Bleach

8.1. Control parameters

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL
Workers, Local effects, Acute - systemic effects, Inhalation : 3.1 mg/m3

DNEL
Workers, Local effects, Long-term - systemic effects, Inhalation : 1.55 mg/m3

DNEL
Workers, Long-term - local effects, Skin contact : 0.5 %

DNEL
Consumers, Local effects, Long-term - systemic effects, Inhalation : 1.55 mg/m3

DNEL
Consumers, Long-term - systemic effects, Ingestion : 0.26 mg/kg

Predicted No Effect Concentration (PNEC)

Fresh water : 0.21 µg/l

Marine water : 0.042 µg/l

Sewage treatment plant (STP) : 0.03 mg/l

Intermittent releases : 0.26 µg/l

Soil :
Exposition is not expected.

Sediment (Marine water) :
Exposition is not expected.

Sediment (Fresh water) :
Exposition is not expected.

Component: chlorine **CAS-No. 7782-50-5**

Other Occupational Exposure Limit Values

EU ELV, Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3
Indicative

EH40 WEL, Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3

ELV (IE), Short Term Exposure Limit (STEL):
0.5 ppm, 1.5 mg/m3
Indicative OELV

8.2. Exposure controls

Appropriate engineering controls
Refer to protective measures listed in sections 7 and 8.

Personal protective equipment
Respiratory protection

Advice	:	Use respirator with appropriate filter if vapours or aerosol are released. Recommended Filter type: Combination filter:B-P2

Hand protection

Advice	:	The glove material has to be impermeable and resistant to the product / the substance / the preparation. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Protective gloves should be replaced at first signs of wear.
Material	:	natural rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	polychloroprene
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Polyvinylchloride
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Nitrile rubber
Break through time	:	>= 8 h
Glove thickness	:	0.35 mm
Material	:	Fluorinated rubber
Break through time	:	>= 8 h

Glove thickness	:	0.4 mm
Material	:	butyl-rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm

Eye protection

Advice	:	Tightly fitting safety goggles

Skin and body protection

Advice	:	Wear suitable protective clothing.

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	liquid Colour
: yellowish Odour		:
slight chlorine		
Odour Threshold	:	no data available
pH	:	>11
Freezing point/range	:	-17C
Boiling point/boiling range	:	110 C
Flash point	:	not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit	:	not applicable
Lower explosion limit	:	not applicable
Vapour pressure	:	no data available

Relative vapour density	:	no data available
Relative density	:	1.2 – 1.3 g/cm3
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	not applicable
Thermal decomposition	:	To avoid thermal decomposition, do not overheat.
Viscosity, dynamic	:	no data available
Explosive properties	:	EU legislation: Not explosive
Oxidizing properties	:	Oxidizing agents

9.2. Other information

No further information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : Contact with acids liberates toxic gas.

10.2. Chemical stability

Advice : Decomposes on exposure to light.
Decomposes on heating.

10.3. Possibility of hazardous reactions

Hazardous reactions : May develop chlorine if mixed with acidic solutions.

10.4. Conditions to avoid

Thermal decomposition : To avoid thermal decomposition, do not overheat.

10.5. Incompatible materials

Materials to avoid : Acids, ammonium compounds, Acetic anhydride, Organic materials, metal salts, Copper, Nickel, Iron

10.6. Hazardous decomposition products

Hazardous decomposition products : Hydrogen chloride gas, Chlorine, chlorine oxides

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Acute toxicity

Oral

LD50 : > 1100 mg/kg (rat; Test substance: Chlorine) (OECD Test Guideline 401)

Inhalation

LC50 : > 10.5 mg/l (rat; 1 h; Test substance: Chlorine) (OECD Test Guideline 403)

Dermal

LD50 : > 20000 mg/kg (rabbit; Test substance: Chlorine) (OECD Test Guideline 402)

Irritation

Skin

Result : Severe skin irritation (rabbit) (OECD Test Guideline 404)

corrosive effects (human)

Eyes

Result : corrosive effects (rabbit) (OECD Test Guideline 405)
Risk of serious damage to eyes.

Sensitisation

Result : not sensitizing (Buehler Test; guinea pig) (OECD Test Guideline 406)

CMR effects

CMR Properties

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

Mutagenicity : Based on available data, the classification criteria are not met.

Teratogenicity : Based on available data, the classification criteria are not met.

Reproductive toxicity : Based on available data, the classification criteria are not met.

Genotoxicity in vitro

negative (Ames test; Salmonella typhimurium) (OECD Test Guideline 471)

ambiguous (Chromosome aberration test in vitro; Chinese hamster fibroblasts) (OECD Test Guideline 473)

Genotoxicity in vivo

negative (Chromosome aberration test in vivo; mouse) (OECD Test Guideline 474)

negative (Chromosome aberration test in vivo; mouse) (OECD Test Guideline 475)

ambiguous (Effects on sperm morphology and melotic micronuclei; mouse)

Teratogenicity

NOAEL Teratog.	:	5.7 mg/kg (rat) Test substance Chlorine

Reproductive toxicity

NOAEL Parent		5 mg/kg (rat) (Oral) Effects on fertility Test substance Chlorine

Specific Target Organ Toxicity

Single exposure

Inhalation	:	May cause respiratory irritation. Experience with human exposure

Repeated exposure

remark	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Repeated dose toxicity

NOAEL : 50 mg/kg

(rat)
(Oral; 90 Days) (OECD Test Guideline 408)

Aspiration hazard

No aspiration toxicity classification

SECTION 12: Ecological information

12.1. Toxicity

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Acute toxicity

Fish

LC50 : 0.06 mg/l (Salmo gairdneri; 96 h)

NOEC : 0.04 mg/l (Menidia peninsulae (tidewater silverside); 96 h)

Toxicity to daphnia and other aquatic invertebrates

EC50 : 0.141 mg/l (Daphnia magna (Water flea); 48 h)

algae

NOEC : 0.0021 mg/l (algae; 7 Days)

M-Factor

M-Factor (Acute Aquat. Tox.) : 10

M-Factor (Chron. Aquat. Tox.) : 1

12.2. Persistence and degradability

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Persistence and degradability

Persistence

Result : The product can be degraded by abiotic (e.g. chemical or photolytic) processes.
decomposition by hydrolysis.

Biodegradability

Result : The methods for determining biodegradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Bioaccumulation

Result : Does not bioaccumulate.

12.4. Mobility in soil

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Mobility

Water : The product is mobile in water enviroment.

Soil : Highly mobile in soils

Air : not volatile (Henry's Constant)

12.5. Results of PBT and vPvB assessment

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

Results of PBT and vPvB assessment

Result : not applicable

12.6. Other adverse effects

Additional ecological information

Result : Do not flush into surface water or sanitary sewer system.

Component: sodium hypochlorite, solution **CAS-No. 7681-52-9**

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleaned are to be disposed of in the same manner as the product.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

3082

14.2. UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sodium hypochlorite)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sodium hypochlorite)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sodium hypochlorite)

14.3. Transport hazard class(es)

ADR-Class	: 9
(Labels; Classification Code; Hazard identification No; Tunnel restriction code)	9; M6; 90; (E)
RID-Class	: 9
(Labels; Classification Code; Hazard identification No)	9; M6; 90
IMDG-Class	: 9
(Labels; EmS)	9; F-A, S-F

14.4. Packaging group

ADR : III
RID : III
IMDG : III

14.5. Environmental hazards

Labeling according to 5.2.1.8 ADR : Fish and tree
Labeling according to 5.2.1.8 RID : Fish and tree
Labeling according to 5.2.1.6.3 IMDG : Fish and tree
Classification as environmentally hazardous according to 2.9.3 IMDG : yes

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

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

Other regulations : Occupational restrictions: Take note of Dir 92/85/EEC on the safety and health of pregnant workers at work and of Dir 94/33/EC on the protection of young people at work.

sodium hypochlorite, solution

EU. Regulation No 1451/2007 [Biocides], Annex I, Active substances identified as existing (OJ (L 325)
Listed EC Number: 231-668-3

:

Notification status

sodium hypochlorite, solution:

Regulatory List	Notification	Notification number
AICS	YES	
DSL	YES	
EINECS	YES	231-668-3
ENCS (JP)	YES	(1)-237
INV (CN)	YES	
ISHL (JP)	YES	(1)-237
KECI (KR)	YES	KE-31506
NZIOC	YES	HSR003698
PICCS (PH)	YES	
TSCA	YES	

15.2. Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text

|| Indicates updated section.