LA-CO Industries, Inc.

Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow

Safety Data Sheet

according to Regulation (EC) No. 453/2010

Date of issue: 25/07/2013 Revision date: 06/02/2015 Supersedes: 25/07/2013 Version: 2.0

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

1.1. Product identifier

Product form : Mixture

Product name : Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow

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

1.2.1. Relevant identified uses

Main use category : Industrial use,Professional use

Use of the substance/mixture : Temperature indicator

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

LA-CO Industries Europe S.A.S.
Parc Industriel de la Plaine de
l'Ain - Allée des Combes.
01150.BLYES.France.
Phone: +33 (0)4 74 46 23 23
Fax: +33 (0)4 74 46 23 29
E-mail: info@eu.laco.com
Web: http://www.markal.com

1.4. Emergency telephone number

Emergency number : 24-hour emergency: CHEMTREC- U.S. : 1-800-424-9300 International: +1-703-527-3887

EU Member State	Officieel adviesorgaan	Adres	Noodnummer
AUSTRIA	Vergiftungsinformationszentrale (Poisons Information Centre)	Allgemeines Krankenhaus Waehringer Geurtel 18-20 1090 Wien	+43 1 406 43 43
BELARUS	The Belarus Republican Poisons Centre	Kizhevatova str. 58 220115 Minsk	+375 (0)17 201 9158
BELGIUM	Centre Anti-Poisons/Antigifcentrum c/o Hôpital Central de la Base - Reine Astrid	Rue Bruyn 1 B -1120 Bruxelles/Brussel	+32 70 245 245
BULGARIA	Национален токсикологичен информационен център National Clinical Toxicology Centre, Emergency Medical Institute "Pirogov"	21 Totleben Boulevard 1606 SOFIA	+359 2 9154 409
CROATIA	Poisons Control Centre Institute of Medical Research & Occupational Health	Ksaverska Cesta 2 P.O. Box 291 HR-10000 Zagreb	+385 1 234 8342
CZECH REPUBLIC	Toxikologické informační středisko Clinic For Occupational Medicine, 1st Medical Faculty, Charles University	Na Bojišti 1 120 00 Praha 2	+42 2 2491 9293 +42 2 2491 5402
DENMARK	Giftlinjen Bispebjerg Hospital	Bispebjerg Bakke 23, 60, 1 DK-2400 København NV	+45 82 12 12 12 +45 35 31 55 55
ESTONIA	Mürgistusteabekeskus	Gonsiori 29 15027 Tallinn	+372 626 93 90
FINLAND	Myrkytystietokeskus	P.O.B 340 (Haartmaninkatu 4) HUS SF - 00029 Helsinki	+358 9 471 977
FRANCE	ORFILA		+33 1 45 42 59 59
GERMANY	Berliner Betrieb für Zentrale Gesundheitliche Aufgaben	Oranienburger Strasse 285 13437 Berlin	+49 30 19240
GERMANY	Informations und Beratungszentrum für Vergiftungsfälle	Kirrberger Straße, Gebäude 9 D-66421 Homburg/Saar	+49 6841 19240
GERMANY	Beratungstelle bei Vergiftungen, Klinische Toxikologie und Beratungsstelle bei Vergiftungen	Langenbeckstrasse 1 55131 Mainz	+49 6131 19240
GREECE	Poisons Information Centre	11527 Athens	+30 10 779 3777
HUNGARY	Országos Kémiai Biztonsági Intézet (National Institute of Chemical Safety) Egészségügyi Toxikológiai Tájékoztató Szolgálat (Health Toxicological Information Service)	1437 Budapest PO Box 839 1097 Budapest, Nagyvárad tér 2	+36 80 20 11 99
ICELAND	Eitrunarmiðstöðin	Eitrunarmiðstöðin 108 Reykjavik	+354 543 22 22
IRELAND	National Poisons Information Centre	Beaumont Hospital PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2166

LATVIA	Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs	2 Hipocrate Street LV 1038 Riga	+371 67 04 24 73
LITHUANIA	Apsinuodijimų kontrolės ir informacijos biuras	Siltnamiu 29 2043 Vilnius	+370 5 236 20 52/+370 687 53 378
MALTA	Medicines & Poisons Info Office	Mater Dei Hospital, Msida MSD 2090 Malta	25450000
NETHERLANDS	Nationaal Vergiftigingen Informatie Centrum National Institute for Public Health and the Environment, NB this service is only available to health professionals	Huispostnummer B.00.118, PO Box 85500 3508 GA Utrecht	+31 30 274 88 88
PORTUGAL	Centro de Informação Antivenenos Instituto Nacional de Emergência Médica (INEM)	Rua Almirante Barroso, 36 1000-013 Lisboa	808 250 143 (for use only in Portugal), +351 21 330 3284
ROMANIA	Biroul pentru Regulamentul Sanitar International si Informare Toxicologica	Str. Dr. Leonte Anastasievici Nr.1-3, Sector 5 50463 Bucuresti	+40 21 318 36 06
SLOVAKIA	Národné toxikologické informačné centrum University Hospital Bratislava	Limbová 5 833 05 Bratislava	+421 2 54 77 4 166
SPAIN	Servicio de Información Toxicológica Instituto Nacional de Toxicología, Departamento de Madrid	Calle Luis Cabrera 9 E-28002 Madrid	+34 91 562 04 20
SWEDEN	Giftinformationscentralen Swedish Poisons Information Centre, Karolinska Hospital	Box 60 500 SE-171 76 Stockholm	+46 8 33 12 31 (International) 112 (National)
SWITZERLAND	Centre Suisse d'Information Toxicologique	Freiestrasse 16 Postfach CH-8028 Zurich	+41 44 251 51 51 (International) 145 (National)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 3 (Oral)	H301
Acute Tox. 2 (Inhalation:dust,mist)	H330
Skin Corr. 1B	H314
Eye Dam. 1	H318
Resp. Sens. 1	H334
Skin Sens. 1	H317
Muta. 1B	H340
Carc. 1B	H350
Repr. 1B	H360
STOT SE 3	H335
STOT SE 3	H336
STOT RE 1	H372
Aquatic Acute 1	H400
Aquatic Chronic 2	H411

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Carc.Cat.2; R45
Muta.Cat.2; R46
Repr.Cat.2; R60
Repr.Cat.2; R61
T+; R26
T; R48/23
Xn; R22
Xn; R48/20
R42
C; R34
Xi; R37
R43
N; R50/53
R5

Full text of R-phrases: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS05 GHS06 GHS08 GHS09

Signal word (CLP) : Danger

Hazardous ingredients : 1,2-epoxybutane, 1-bromopropane, sodium chromate

Hazard statements (CLP) :
H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H330 - Fatal if inhaled
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 - May cause respiratory irritation
H336 - May cause drowsiness or dizziness
H340 - May cause genetic defects
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (CLP) :
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe mist, spray, vapours
P264 - Wash hands, forearms and face thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P273 - Avoid release to the environment
P280 - Wear face shield, eye protection, protective clothing, protective gloves
P284 - Wear respiratory protection
P301+P310 - IF SWALLOWED: Immediately call a doctor, a POISON CENTER
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P302+P352 - IF ON SKIN: Wash with plenty of water
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER/doctor
P320 - Specific treatment is urgent (see First aid measures on this label)
P321 - Specific treatment (see First aid measures on this label)
P330 - Rinse mouth
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a doctor, a POISON CENTER
P362+P364 - Take off contaminated clothing and wash it before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to an authorised waste collection point

2.3. Other hazards

PBT: not yet assessed

vPvB: not yet assessed

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Components with health hazards above the applicable thresholds or with Exposure Limits are shown. Specific concentrations withheld as trade secret.

Name	Product identifier	%	Classification according to Directive 67/548/EEC	Classification according to Regulation (EC) No. 1272/2008 [CLP]
1-bromopropane substance listed as REACH Candidate (1-bromopropane (n-propyl bromide))	(CAS No) 106-94-5 (EC no) 203-445-0 (EC index no) 602-019-00-5	60 – 80	F; R11 Repr.Cat.2; R60 Repr.Cat.3; R63 Xn; R48/20 Xi; R36/37/38 R67	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Repr. 1B, H360FD STOT SE 3, H335 STOT SE 3, H336 STOT RE 2, H373
sodium chromate substance listed as REACH Candidate substance listed in REACH Annex XIV	(CAS No) 7775-11-3 (EC no) 231-889-5 (EC index no) 024-018-00-3	20- 30	Not classified	Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Dermal), H312 Acute Tox. 2 (Inhalation:dust,mist), H330 Skin Corr. 1B, H314 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 1B, H340 Carc. 1B, H350 Repr. 1B, H360FD STOT RE 1, H372 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410
1,2-epoxybutane	(CAS No) 106-88-7 (EC no) 203-438-2 (EC index no) 603-102-00-9	0 – 1	F; R11 Carc.Cat.3; R40 Xn; R20/21/22 Xi; R36/37/38 R52/53	Flam. Liq. 2, H225 Carc. 2, H351 Acute Tox. 4 (Inhalation), H332 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Aquatic Chronic 3, H412
nitromethane	(CAS No) 75-52-5 (EC no) 200-876-6 (EC index no) 609-036-00-7	0 – 1	R5 R10 Xn; R22	Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302
Polyethylene Glycol	(CAS No) 25322-68-3 (EC no) 500-038-2	< 0.1	Not classified	Not classified

Name	Product identifier	Specific concentration limits
nitromethane	(CAS No) 75-52-5 (EC no) 200-876-6 (EC index no) 609-036-00-7	(C >= 12.5) Xn;R22

Full text of R- and H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Immediately call a POISON CENTER or doctor/physician. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

First-aid measures after skin contact : Immediately call a POISON CENTER or doctor/physician. Rinse skin with water/shower. Wash with plenty of soap and water. Remove/Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after ingestion : Rinse mouth. Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.

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

Symptoms/injuries : May cause genetic defects. May cause cancer. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

Symptoms/injuries after inhalation : Fatal if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Causes severe skin burns and eye damage. May cause an allergic skin reaction.

Symptoms/injuries after eye contact : Causes serious eye damage.

Symptoms/injuries after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Dry powder. Foam. Sand. Water fog.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Burning produces irritating, toxic and noxious fumes.

Explosion hazard : Product is not explosive.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus. EN469.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Safety showers and eye wash stations should be located near areas with splash hazards. Avoid all eye and skin contact and do not breathe vapour and mist.

6.1.1. For non-emergency personnel

Protective equipment : Face shield. Chemical goggles or safety glasses. Wear suitable protective clothing and gloves. Wear suitable gloves resistant to chemical penetration. In case of inadequate ventilation wear respiratory protection.

Emergency procedures : Evacuate unnecessary personnel. Keep upwind. Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment : Face shield. Chemical goggles or safety glasses. Wear suitable protective clothing and gloves. Wear protective rubber clothing with splash guard. Where excessive vapour, mist, or dust may result, use approved respiratory protection equipment.

Emergency procedures : Ventilate area. Stop leak if safe to do so. Relevant water authorities should be notified of any large spillage to water course or drain. Keep upwind.

6.2. Environmental precautions

Avoid release to the environment. Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers. Do not discharge into drains or the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Absorb and/or contain spill with inert material, then place in suitable container. Do not allow minor leaks or spills to accumulate on walking surfaces.

Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not breathe mist, spray, vapours. Use only outdoors or in a well-ventilated area. Avoid contact with skin, eyes and clothing. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Eliminate all ignition sources if safe to do so. Avoid contact during pregnancy/while nursing. Wear proper protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash your hands immediately after handling this product, and once again before leaving the workplace. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions : Keep container tightly closed. Keep only in the original container in a cool well ventilated place.

Incompatible products : Strong acids. Strong bases.

Incompatible materials : Heat sources. Direct sunlight.

Prohibitions on mixed storage : Incompatible materials.

Storage area : Keep out of direct sunlight.

7.3. Specific end use(s)

Temperature indicator.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1-bromopropane (106-94-5)		
Italy - Portugal - USA ACGIH	Local name	1-Bromopropane
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	10 ppm

1-bromopropane (106-94-5)		
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Liver & embryo/fetal dam; A3
Spain	VLA-ED (ppm)	10 ppm
Spain	Notes	TR1B

nitromethane (75-52-5)		
Italy - Portugal - USA ACGIH	Local name	Nitromethane
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m³)	50 mg/m³
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	20 ppm
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Thyroid eff; URT irr; lung dam
Denmark	Grænseværdie (kortvarig) (mg/m³)	100 mg/m³
Denmark	Grænseværdie (kortvarig) (ppm)	40 ppm

Polyethylene Glycol (25322-68-3)		
Austria	MAK (mg/m³)	1000 mg/m³ (einatembare Fraktion)
Austria	MAK Short time value (mg/m³)	4000 mg/m³ max. 4x15 min./Schicht (einatembare Fraktion)
Germany	TRGS 900 Occupational exposure limit value (mg/m³)	1000 mg/m³
Germany	TRGS 900 Limitation of exposure peaks (mg/m³)	8000 mg/m³
Germany	Remark (TRGS 900)	(einatembare Fraktion)
Switzerland	VME (ppm)	1000 ppm
Switzerland	Remark (CH)	(mittlere Molmasse 200–600)
Denmark	Grænseværdie (langvarig) (mg/m³)	1000 mg/m³
Denmark	Grænseværdie (kortvarig) (mg/m³)	2000 mg/m³
Denmark	Anmærkninger (DK)	(Polyethylenglycol (PEG) med middelmolvægt på 200-600)
Slovakia	NPHV (priemerná) (mg/m³)	1000 mg/m³
Slovakia	Upozornenie (SK)	krátkodobý: kategória II.

sodium chromate (7775-11-3)		
Spain	Notes	C1B,M1B,Sen,r,Tr1B
Finland	Huomautus (FI)	CrO4
Sweden	nivågränsvärde (NVG) (mg/m³)	0.005 mg/m³
Sweden	kortidsvärde (KTV) (mg/m³)	0.015 mg/m³
Sweden	Anmärkning (SE)	total dust; C, S 1 (as Cr)

8.2. Exposure controls

Appropriate engineering controls : Avoid creating mist or spray. Avoid splashing. Either local exhaust or general room ventilation is usually required. Emergency safety showers should be available in the immediate vicinity of any potential exposure. Eyewash stations.

Personal protective equipment : Avoid all unnecessary exposure.

Hand protection : Wear suitable gloves resistant to chemical penetration. Impermeable protective nitrile gloves. EN 374.

Eye protection : Face shield. Chemical goggles or safety glasses. EN 166.

Skin and body protection : Wear suitable protective clothing. Long sleeved protective clothing. Impervious clothing. EN702.

Respiratory protection : Wear respiratory protection. EN 12083. Use an approved respirator equipped with oil/mist cartridges.

Thermal hazard protection : Wear fire/flame resistant/retardant clothing.

Environmental exposure controls : Prevent leakage or spillage.

Consumer exposure controls : Keep out of reach of children. Avoid contact during pregnancy/while nursing.

Other information : Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Colour : Yellow

Odour : No data available

Odour threshold : No data available

pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	788 °C
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	> 96 °C
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

VOC content: 74.7%

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapours.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

Direct sunlight. Heat.

10.5. Incompatible materials

Strong bases. Strong acids.

10.6. Hazardous decomposition products

Thermal decomposition generates : Corrosive vapours. Carbon dioxide. Carbon monoxide. Hydrogen halide. Bromides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Inhalation:dust,mist: Fatal if inhaled.

Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow	
ATE CLP (oral)	207.213 mg/kg bodyweight
ATE CLP (dust,mist)	0.200 mg/l/4h

1,2-epoxybutane (106-88-7)	
LD50 oral rat	1100 µl/kg
LC50 inhalation rat (Vapours - mg/l/4h)	30 minute exposure- 5/5 died, All unconscious when removed. Died by end of day. 12 minute exposure- 5/5 died, All unsteady when removed and died two hours after exposure. 6 minute exposure- 0/3 died.
ATE CLP (oral)	500.000 mg/kg bodyweight
ATE CLP (dermal)	1100.000 mg/kg bodyweight
ATE CLP (gases)	4500.000 ppmv/4h
ATE CLP (vapours)	11.000 mg/l/4h
ATE CLP (dust,mist)	1.500 mg/l/4h

1-bromopropane (106-94-5)	
LD50 oral rat	> 2000
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (ppm)	14374 ppm/4h

1-bromopropane (106-94-5)	
ATE CLP (gases)	14374.000 ppmv/4h

nitromethane (75-52-5)	
LD50 oral rat	1506 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 12.75 mg/l 1 h
ATE CLP (oral)	1506.000 mg/kg bodyweight

Polyethylene Glycol (25322-68-3)	
LD50 oral rat	47000 mg/kg
LD50 dermal rat	> 20000 mg/kg
ATE CLP (oral)	47000.000 mg/kg bodyweight

sodium chromate (7775-11-3)	
LD50 oral rat	51.91 mg/kg Read across category approach
LD50 dermal rat	1330 mg/kg read across category approach
LC50 inhalation rat (mg/l)	99 mg/m³ 4 h, read across category approach
ATE CLP (oral)	51.910 mg/kg bodyweight
ATE CLP (dermal)	1330.000 mg/kg bodyweight
ATE CLP (dust,mist)	0.050 mg/l/4h

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Germ cell mutagenicity : May cause genetic defects.

Carcinogenicity : May cause cancer.

Reproductive toxicity : May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) : May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity (repeated exposure) : Causes damage to organs through prolonged or repeated exposure.

1-bromopropane (106-94-5)	
NOAEL (inhalation, rat, dust/mist/fume, 90 days)	1 mg/l/6h/day

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Very toxic to aquatic life. Toxic to aquatic life with long lasting effects.

1,2-epoxybutane (106-88-7)	
LC50 fishes 1	> 100 mg/l 96 h
EC50 Daphnia 1	70 mg/l 48 h
ErC50 (algae)	> 500 mg/l 72 h

1-bromopropane (106-94-5)	
EC50 Daphnia 1	203 mg/l 24 h
ErC50 (algae)	52.4 mg/l

nitromethane (75-52-5)	
LC50 fishes 1	659.2 mg/l 96 h
EC50 Daphnia 1	> 103 mg/l 48 h

Polyethylene Glycol (25322-68-3)	
LC50 fishes 1	> 100 mg/l
LC50 other aquatic organisms 1	1000 mg/l

sodium chromate (7775-11-3)	
LC50 fishes 1	58.5 mg/l 96 h, Brachydanio rerio. read across category approach
EC50 Daphnia 1	0.035 mg/l 48 h, read across category approach

12.2. Persistence and degradability

Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow	
Persistence and degradability	May cause long-term adverse effects in the environment.

1,2-epoxybutane (106-88-7)	
Persistence and degradability	Readily biodegradable.

1-bromopropane (106-94-5)	
Persistence and degradability	Readily biodegradable.

nitromethane (75-52-5)	
Persistence and degradability	Not readily biodegradable.
Biodegradation	9.9 % 28 d

12.3. Bioaccumulative potential

1,2-epoxybutane (106-88-7)	
Log Pow	0.86

1-bromopropane (106-94-5)	
BCF fish 1	11.29 L/kg wwt
Log Pow	2.16

nitromethane (75-52-5)	
Log Pow	-0.241

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow
PBT: not yet assessed
vPvB: not yet assessed

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Do not dispose in household garbage.

Sewage disposal recommendations : Do not dispose of waste into sewer.

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Clean up even minor leaks or spills if possible without unecessary risk.

Ecology - waste materials : Hazardous waste due to toxicity.

European List of Waste (LoW) code : For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

H code : H10 - 'Toxic for reproduction': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence.
H11 - 'Mutagenic': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence.
H13 - 'Sensitizing': substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced.
H14 - 'Ecotoxic': waste which presents or may present immediate or delayed risks for one or more sectors of the environment.
H4 - 'Irritant': non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation.
H6 - 'Toxic': substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death.
H7 - 'Carcinogenic': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence.
H8 - 'Corrosive': substances and preparations which may destroy living tissue on contact.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 2927

UN-No.(IATA) : 2927

UN-No. (IMDG) : 2927

UN-No.(ADN) : 2927

14.2. UN proper shipping name

Proper Shipping Name (ADR)	:	Toxic liquid, corrosive, organic, n.o.s. (sodium chromate)
Proper Shipping Name (IATA)	:	Toxic liquid, corrosive, organic, n.o.s. (sodium chromate)
Proper Shipping Name (IMDG)	:	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (sodium chromate)
Proper Shipping Name (ADN)	:	TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (sodium chromate)
Transport document description (ADR)	:	UN 2927 TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (sodium chromate), 6.1 (8), II, (D/E), ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

Class (ADR)	:	6.1
Classification code (ADR)	:	TC1
Class (IATA)	:	6.1
Class (IMDG)	:	6.1
Class (ADN)	:	6.1
Classification code (ADN)	:	TC1
Subsidiary risk (IMDG)	:	8
Division (IATA)	:	6.1

14.4. Packing group

Packing group (ADR)	:	II
Packing group (IATA)	:	II
Packing group (IMDG)	:	II
Packing group (ADN)	:	II

14.5. Environmental hazards

Dangerous for the environment :

Other information : No supplementary information available.

14.6. Special precautions for user

14.6.1. Overland transport

Hazard identification number (Kemler No.)	:	68
Classification code (ADR)	:	TC1
Orange plates	:	
Tunnel restriction code (ADR)	:	D/E
EAC code	:	2XE
APP code	:	B

14.6.2. Transport by sea

EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-B
Stowage category (IMDG)	:	B

14.6.3. Inland waterway transport

Carriage prohibited (ADN) : No

14.7. 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

15.1.1. EU-Regulations

Contains no substances with Annex XVII restrictions

Tempilaq® Temperature Indicating Liquid 1450 °F (788 °C) Yellow is not on the REACH Candidate List

Contains substance on the REACH candidate list in concentration ≥ 0.1% or with a lower specific limit: 1-bromopropane (n-propyl bromide) (EC 203-445-0, CAS 106-94-5), Sodium chromate (EC 231-889-5, CAS 7775-11-3)

Contains REACH Annex XIV substances:

15.1.2. National regulations

All components are listed on the EEC inventory European Inventory of Existing Commercial Chemical Substances (EINECS).
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
All ingredients are listed in the Toxic Substances Control Act (TSCA).

Germany

Water hazard class (WGK)	:	3 - severe hazard to waters
WGK remark	:	Classification based on the R-phrases in compliance withVerwaltungsvorschrift wassergefährdender Stoffe (VwVwS)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:
GHS classification information. Revised sections: 1 - 16.

Data sources : ACGIH 2000.

Canadian Centre for Occupational Health and Safety. Accessed at: http://www.ccohs.ca/oshanswers/legisl/whmis_classifi.html.

ESIS (European chemincal Substances Information System; accessed at: http://esis.jrc.ec.europa.eu/index.php?PGM=cla.

European Chemicals Agency (ECHA) Registered Substances list. Accessed at http://echa.europa.eu/. Krister Forsberg and S.Z. Mansdorf, "Quick Selection Guide to Chemical Protective Clothing", Fifth Edition.

National Fire Protection Association; Fire Protection Guide to Hazardous Materials; 10th edition.

OSHA 29CFR 1910.1200 Hazard Communication Standard.

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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

TSCA Chemical Substance Inventory. Accessed at http://www.epa.gov/oppt/existingchemicals/pubs/tscainventory/howto.html.

Abbreviations and acronyms : ACGIH (American Conference of Governement Industrial Hygienists).

ATE: Acute Toxicity Estimate.

CAS (Chemical Abstracts Service) number.

CLP: Classification, Labelling, Packaging.

GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).

LD50: Lethal Dose for 50% of the test population.

OSHA: Occupational Safety & Health Administration.

PBT: Persistent, Bioaccumulative, Toxic.

STEL: Short Term Exposure Limits.

TSCA: Toxic Substances Control Act.

TWA: Time Weight Average.

Other information : None.

Full text of R-, H- and EUH-phrases:

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhal.), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment — Chronic Hazard, Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment — Chronic Hazard, Category 3
Carc. 1B	Carcinogenicity, Category 1B
Carc. 2	Carcinogenicity, Category 2
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Muta. 1B	Germ cell mutagenicity, Category 1B

Repr. 1B	Reproductive toxicity, Category 1B
Repr. 1B	Reproductive toxicity, Category 1B
Resp. Sens. 1	Sensitisation — Respiratory, category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
Skin Sens. 1	Sensitisation — Skin, category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
STOT RE 2	Specific target organ toxicity — Repeated exposure, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H301	Toxic if swallowed
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H330	Fatal if inhaled
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H360FD	May damage fertility. May damage the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects
R10	Flammable
R11	Highly flammable
R20/21/22	Harmful by inhalation, in contact with skin and if swallowed
R21	Harmful in contact with skin
R22	Harmful if swallowed
R25	Toxic if swallowed
R26	Very toxic by inhalation
R34	Causes burns
R36/37/38	Irritating to eyes, respiratory system and skin
R37	Irritating to respiratory system
R40	Limited evidence of a carcinogenic effect
R42	May cause sensitization by inhalation
R43	May cause sensitisation by skin contact
R45	May cause cancer
R46	May cause heritable genetic damage
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation
R5	Heating may cause an explosion
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R60	May impair fertility
R61	May cause harm to the unborn child
R63	Possible risk of harm to the unborn child
R67	Vapours may cause drowsiness and dizziness

C	Corrosive
F	Highly flammable
N	Dangerous for the environment
T	Toxic
T+	Very toxic
Xi	Irritant
Xn	Harmful

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Acute Tox. 3 (Oral)	H301	Calculation method
Acute Tox. 2 (Inhalation:dust,mist)	H330	Calculation method
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method
Resp. Sens. 1	H334	Calculation method
Skin Sens. 1	H317	Calculation method
Muta. 1B	H340	Calculation method
Carc. 1B	H350	Calculation method
Repr. 1B	H360	Calculation method
STOT SE 3	H335	Calculation method
STOT SE 3	H336	Calculation method
STOT RE 1	H372	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 2	H411	Calculation method

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LA-CO EU CLP SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product