

According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

**1.1 Product identifier:** Handy Foam

A104

Other means of identification:

B5105

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

Relevant uses (Professional users): Degreaser Relevant uses (Industrial user): Degreaser For Professional users/Industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet:

Arrow Solutions Rawdon Road, Moira

DE12 6DA Swadlincote - Derbyshire - United Kingdom

Phone: 01283 221044 sales@arrowchem.com www.arrowchem.com

Represented By:

Authorised Rep Compliance Representing Reabrook Ltd

Ground Floor

**Lower Baggot Street** 

Dublin D02 P593 Ireland

www.authorisedrepcompliance.com

1.4 Emergency telephone number: For 24/7 multilingual advice for spill, leak, fire, exposure, or accident Call CHEMTREC at +44 20 3885 0382 /

+44 20 3807 3798 and provide CCN 1018674; NPIS: 0344 892 0111 (healthcare professionals only) or NHS

111

## **SECTION 2: HAZARDS IDENTIFICATION**

## 2.1 Classification of the substance or mixture:

# GB CLP Regulation (UK S.I. 2019/720 and UK S.I. 2020/1567):

Classification of this product has been carried out in accordance with GB CLP Regulation (UK S.I. 2019/720 and UK S.I. 2020/1567).

Aerosol 1: Flammable aerosols, Category 1, H222

Aerosol 1: Pressurised container: May burst if heated., H229

2.2 Label elements:

## GB CLP Regulation (UK S.I. 2019/720 and UK S.I. 2020/1567):

Danger



#### **Hazard statements:**

Aerosol 1: H222 - Extremely flammable aerosol.

Aerosol 1: H229 - Pressurised container: May burst if heated.

## **Precautionary statements:**

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P211: Do not spray on an open flame or other ignition source.

P251: Do not pierce or burn, even after use.

P280: Wear protective gloves.

P410+P412: Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.

P501: Dispose of the contents/containers in accordance with the current legislation on waste treatment

Supplementary information:





# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 2: HAZARDS IDENTIFICATION (continued)

EUH208: Contains d-limonene, 2,2′,2′′-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol, 1,2-benzisothiazol-3(2H)-one. May produce an allergic reaction.

### 2.3 Other hazards:

Product does not meet PBT/vPvB criteria

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substance:

Not available

#### 3.2 Mixture:

Chemical description: Mixture of substances

Components:

In accordance with Annex II of The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020, the product contains:

	Identification	Chemical name/Classification	Concentration
CAS: EC: REACH:	68476-85-7 270-704-2 01-2119485911-31-XXXX	Petroleum gases, liquefied, < 0.1 % EC 203-450-8 Flam. Gas 1A: H220; Press. Gas: H280 - Danger	10 - <25 %
CAS: EC: REACH:	67-63-0 200-661-7 01-2119457558-25-XXXX	propan-2-ol Eye Irrit. 2: H319; Flam. Liq. 2: H225; STOT SE 3: H336 - Danger	3 - <10 %
CAS: EC: REACH:	111-76-2 203-905-0 01-2119475108-36-XXXX	<b>2-butoxyethanol</b> Acute Tox. 4: H302+H312+H332; Eye Irrit. 2: H319; Skin Irrit. 2: H315 - Warning	3 - <10 %
CAS: EC: REACH:	5989-27-5 227-813-5 01-2119529223-47-XXXX	d-limonene  Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Asp. Tox. 1: H304; Flam. Liq. 3: H226; Skin Irrit. 2: H315; Skin Sens. 1: H317 - Danger	<1 %
CAS: EC: REACH:	4719-04-4 225-208-0 01-2119529226-41-XXXX	<b>2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol</b> Acute Tox. 2: H330; Acute Tox. 4: H302; Skin Sens. 1: H317; STOT RE 1: H372 - Danger	<1 %
CAS: EC: REACH:	141-43-5 205-483-3 01-2119486455-28-XXXX	2-aminoethanol Acute Tox. 4: H302+H312+H332; Aquatic Chronic 3: H412; Skin Corr. 1B: H314; STOT SE 3: H335 - Danger	<1 %
CAS: EC: REACH:	2634-33-5 220-120-9 01-2120761540-60-XXXX	1,2-benzisothiazol-3(2H)-one Acute Tox. 2: H330; Acute Tox. 4: H302; Aquatic Acute 1: H400; Aquatic Chronic 1: H410; Eye Dam. 1: H318; Skin Irrit. 2: H315; Skin Sens. 1A: H317 - Danger	<1 %

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

Acute toxicity estimate for the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or as determined in accordance with Annex I to that Regulation:

Identification	Acute toxi	city	Genus
2-aminoethanol	LD50 oral	1515 mg/kg	Rat
CAS: 141-43-5	LD50 dermal	2504 mg/kg	Rabbit
EC: 205-483-3	LC50 inhalation vapour	11 mg/L	
	LC50 inhalation mist	1.5 mg/L *	
2-butoxyethanol	LD50 oral	1200 mg/kg	Rat
CAS: 111-76-2	LD50 dermal	Not available	
EC: 203-905-0	LC50 inhalation vapour	3 mg/L (0 h) (ATEi)	
	LC50 inhalation mist	>5 mg/L (ATEi)	
2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	LD50 oral	1000 mg/kg	Rat
CAS: 4719-04-4	LD50 dermal	Not available	
EC: 225-208-0	LC50 inhalation vapour	0.5 mg/L	Rat
	LC50 inhalation mist	0.05 mg/L *	
1,2-benzisothiazol-3(2H)-one	LD50 oral	450 mg/kg	
CAS: 2634-33-5	LD50 dermal	Not available	
EC: 220-120-9	LC50 inhalation vapour	0.5 mg/L	
	LC50 inhalation mist	0.05 mg/L *	

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 2/15



According to UK REACH (S.I. 2019/758)

## Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS (continued)

Identification	Acute toxicity	Genus

\* Equivalent ATE value of the substance applicable to the exposure route of the product. For the ATE value associated with the exposure route of the substance, see section 11.

### **SECTION 4: FIRST AID MEASURES**

#### 4.1 Description of first aid measures:

The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

#### By inhalation:

This product is not classified as hazardous through inhalation. However, in case of intoxication symptoms it is recommended to remove the person affected from the area of exposure, provide clean air and keep at rest. Request medical attention if symptoms persist.

#### By skin contact:

This product is not classified as hazardous when in contact with the skin. However, in case of skin contact it is recommended to remove contaminated clothes and shoes, rinse the skin or if necessary shower the affected person thoroughly with cold water and neutral soap. In case of serious reaction consult a doctor.

#### By eye contact:

Rinse eyes thoroughly with water for at least 15 minutes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case removal could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS for the product.

#### By ingestion/aspiration:

Do not induce vomiting, but if it does happen keep the head down to avoid aspiration. Keep the person affected at rest. Rinse out the mouth and throat, as they may have been affected during ingestion.

#### 4.2 Most important symptoms and effects, both acute and delayed:

Acute and delayed effects are indicated in sections 2 and 11.

#### 4.3 Indication of any immediate medical attention and special treatment needed:

Not relevant

## **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1 Extinguishing media:

# Suitable extinguishing media:

Foam extinguisher (AB), Dry Chemical Powder (ABC) Fire Extinguisher, Carbon dioxide extinguisher (BC)

#### Unsuitable extinguishing media:

Water iet

# 5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

# 5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and Self Contained Breathing Apparatus. Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...)

#### Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

- CONTINUED ON NEXT PAGE -

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### 6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:



According to UK REACH (S.I. 2019/758)

## **Handy Foam** A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 6: ACCIDENTAL RELEASE MEASURES (continued)

Isolate leaks provided that there is no additional risk for the people performing this task. Evacuate the area and keep out those without protection. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Above all prevent the formation of any vapour-air flammable mixtures, through either ventilation or the use of an inert medium. Remove any source of ignition. Eliminate electrostatic charges by interconnecting all the conductive surfaces on which static electricity could form, and also ensuring that all surfaces are connected to the ground.

#### For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

#### 6.2 **Environmental precautions:**

It is recommended to avoid environmental spillage of both the product and its container.

#### 6.3 Methods and material for containment and cleaning up:

It is recommended:

Prevent the entrance of product in drains, sewers or watercourses. Absorb the spill using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. Collect the product in appropriate containers and manage it according to current legislation.

Spillages in water or sea:

Small spillages:

Contain spillage using barriers or similar equipment. Use suitable absorbents for collection and treat the waste in accordance with current regulations.

Large spillages:

If possible, contain spillage in open water using barriers or similar equipment. If this is not possible, try to control its spread and collect the product with suitable mechanical means. Always consult experts before using dispersants and make sure you have the necessary approvals if they are to be used. Treat the waste according to current regulations.

#### 6.4 Reference to other sections:

See sections 8 and 13.

# **SECTION 7: HANDLING AND STORAGE**

#### 7.1 Precautions for safe handling:

A.- General precautions for safe use

Comply with the current legislation concerning the prevention of industrial risks with regards manually handling weights. Maintain order, cleanliness and dispose of using safe methods (section 6).

B.- Technical recommendations for the prevention of fires and explosions

Avoid the evaporation of the product as it contains flammable substances, which could form flammable vapour/air mixtures in the presence of sources of ignition. Control sources of ignition (mobile phones, sparks,...) and transfer at slow speeds to avoid the creation of electrostatic charges. Consult section 10 for conditions and materials that should be avoided.

C.- Technical recommendations on general occupational hygiene

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

#### 7.2 Conditions for safe storage, including any incompatibilities:

A.- Specific storage requirements

Minimum Temp.: 4 ºC Maximum Temp.: 40 ºC

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

#### 7.3 Specific end use(s):

Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

#### 8.1 Control parameters:

Date of compilation: 13/07/2023



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Substances whose occupational exposure limits have to be assessed in the workplace:

EH40/2005 Workplace exposure limits, fourth edition, published 2020:

Identification		Occupational exposure limits		
propan-2-ol	WEL (8h)	400 ppm	999 mg/m <sup>3</sup>	
CAS: 67-63-0	WEL (15 min)	500 ppm	1250 mg/m <sup>3</sup>	
2-aminoethanol (1)	WEL (8h)	1 ppm	2.5 mg/m <sup>3</sup>	
CAS: 141-43-5	WEL (15 min)	3 ppm	7.6 mg/m <sup>3</sup>	
2-butoxyethanol (1)	WEL (8h)	25 ppm	123 mg/m <sup>3</sup>	
CAS: 111-76-2	WEL (15 min)	50 ppm	246 mg/m <sup>3</sup>	
Petroleum gases, liquefied, < 0.1 % EC 203-450-8	WEL (8h)	1000 ppm	1750 mg/m <sup>3</sup>	
CAS: 68476-85-7	WEL (15 min)	1250 ppm	2180 mg/m <sup>3</sup>	

<sup>(1)</sup> Skin

# **Biological limit values:**

BIOLOGICAL MONITORING GUIDANCE VALUES (BMGVS) - EH40/2005

Identification	NULL	NULL	NULL
2-butoxyethanol CAS: 111-76-2	280 mg/g (Creatinine)	Butoxyacetic acid in urine	Post shift

## **DNEL (Workers):**

		Short e	exposure	Long e	xposure
Identification		Systemic	Local	Systemic	Local
Petroleum gases, liquefied, < 0.1 % EC 203-450-8	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 68476-85-7	Dermal	Not relevant	Not relevant	23.4 mg/kg	Not relevant
EC: 270-704-2	Inhalation	Not relevant	Not relevant	Not relevant	Not relevant
propan-2-ol	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 67-63-0	Dermal	Not relevant	Not relevant	888 mg/kg	Not relevant
EC: 200-661-7	Inhalation	1000 mg/m <sup>3</sup>	Not relevant	500 mg/m <sup>3</sup>	Not relevant
2-butoxyethanol	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 111-76-2	Dermal	89 mg/kg	Not relevant	125 mg/kg	Not relevant
EC: 203-905-0	Inhalation	1091 mg/m³	246 mg/m <sup>3</sup>	98 mg/m³	Not relevant
d-limonene	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 5989-27-5	Dermal	Not relevant	Not relevant	9.5 mg/kg	Not relevant
EC: 227-813-5	Inhalation	Not relevant	Not relevant	66.7 mg/m³	Not relevant
2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 4719-04-4	Dermal	Not relevant	Not relevant	Not relevant	Not relevant
EC: 225-208-0	Inhalation	Not relevant	Not relevant	Not relevant	0.2 mg/m <sup>3</sup>
2-aminoethanol	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 141-43-5	Dermal	Not relevant	Not relevant	3 mg/kg	Not relevant
EC: 205-483-3	Inhalation	Not relevant	Not relevant	1 mg/m³	0.51 mg/m <sup>3</sup>
1,2-benzisothiazol-3(2H)-one	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 2634-33-5	Dermal	Not relevant	Not relevant	0.966 mg/kg	Not relevant
EC: 220-120-9	Inhalation	Not relevant	Not relevant	6.81 mg/m³	Not relevant

# DNEL (General population):

		Short ex	xposure	Long ex	kposure
Identification		Systemic	Local	Systemic	Local
propan-2-ol	Oral	51 mg/kg	Not relevant	26 mg/kg	Not relevant
CAS: 67-63-0	Dermal	Not relevant	Not relevant	319 mg/kg	Not relevant
EC: 200-661-7	Inhalation	178 mg/m³	Not relevant	114 mg/m³	Not relevant
2-butoxyethanol	Oral	Not relevant	Not relevant	6.3 mg/kg	Not relevant
CAS: 111-76-2	Dermal	89 mg/kg	Not relevant	75 mg/kg	Not relevant
EC: 203-905-0	Inhalation	426 mg/m³	147 mg/m³	59 mg/m³	Not relevant



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

# SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

		Short e	xposure	Long ex	kposure
Identification		Systemic	Local	Systemic	Local
d-limonene	Oral	Not relevant	Not relevant	4.8 mg/kg	Not relevant
CAS: 5989-27-5	Dermal	Not relevant	Not relevant	4.8 mg/kg	Not relevant
EC: 227-813-5	Inhalation	Not relevant	Not relevant	16.6 mg/m <sup>3</sup>	Not relevant
2-aminoethanol	Oral	Not relevant	Not relevant	1.5 mg/kg	Not relevant
CAS: 141-43-5	Dermal	Not relevant	Not relevant	1.5 mg/kg	Not relevant
EC: 205-483-3	Inhalation	Not relevant	Not relevant	0.18 mg/m <sup>3</sup>	0.28 mg/m <sup>3</sup>
1,2-benzisothiazol-3(2H)-one	Oral	Not relevant	Not relevant	Not relevant	Not relevant
CAS: 2634-33-5	Dermal	Not relevant	Not relevant	0.345 mg/kg	Not relevant
EC: 220-120-9	Inhalation	Not relevant	Not relevant	1.2 mg/m <sup>3</sup>	Not relevant

#### PNFC:

Identification				
propan-2-ol	STP	2251 mg/L	Fresh water	140.9 mg/L
CAS: 67-63-0	Soil	28 mg/kg	Marine water	140.9 mg/L
EC: 200-661-7	Intermittent	140.9 mg/L	Sediment (Fresh water)	552 mg/kg
	Oral	0.16 g/kg	Sediment (Marine water)	552 mg/kg
2-butoxyethanol	STP	463 mg/L	Fresh water	8.8 mg/L
CAS: 111-76-2	Soil	2.33 mg/kg	Marine water	0.88 mg/L
EC: 203-905-0	Intermittent	26.4 mg/L	Sediment (Fresh water)	34.6 mg/kg
	Oral	0.02 g/kg	Sediment (Marine water)	3.46 mg/kg
d-limonene	STP	1.8 mg/L	Fresh water	0.014 mg/L
CAS: 5989-27-5	Soil	0.763 mg/kg	Marine water	0.0014 mg/L
EC: 227-813-5	Intermittent	Not relevant	Sediment (Fresh water)	3.85 mg/kg
	Oral	0.133 g/kg	Sediment (Marine water)	0.385 mg/kg
2,2´,2´´-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	STP	5.5 mg/L	Fresh water	0.007 mg/L
CAS: 4719-04-4	Soil	0.002 mg/kg	Marine water	0.001 mg/L
EC: 225-208-0	Intermittent	0.007 mg/L	Sediment (Fresh water)	0.03 mg/kg
	Oral	Not relevant	Sediment (Marine water)	0.003 mg/kg
2-aminoethanol	STP	100 mg/L	Fresh water	0.07 mg/L
CAS: 141-43-5	Soil	1.29 mg/kg	Marine water	0.007 mg/L
EC: 205-483-3	Intermittent	0.028 mg/L	Sediment (Fresh water)	0.357 mg/kg
	Oral	Not relevant	Sediment (Marine water)	0.036 mg/kg
1,2-benzisothiazol-3(2H)-one	STP	1.03 mg/L	Fresh water	0.00403 mg/L
CAS: 2634-33-5	Soil	3 mg/kg	Marine water	0.000403 mg/L
EC: 220-120-9	Intermittent	0.0011 mg/L	Sediment (Fresh water)	0.0499 mg/kg
	Oral	Not relevant	Sediment (Marine water)	0.00499 mg/kg

# 8.2 Exposure controls:

A.- Individual protection measures, such as personal protective equipment

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<UKCA marking>> or <<CE marking>>. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

Pictogram	PPE	Remarks
Compulsory use of face mask	Filter mask for particles (Filter type: A2P2)	Replace when an increase in resistence to breathing is observed.

C.- Specific protection for the hands



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Pictogram	PPE	Remarks
Mandatory hand protection	Protective gloves against minor risks (Material: Latex (natural rubber), Breakthrough time: > 480 min, Thickness: 0.062 mm, Conditions of use: Splashing)	product for professional users/industrials, we recommend using CE III gloves in line with
Mandatory hand protection	Protective gloves against minor risks (Material: Nitrile, Breakthrough time: > 480 min, Thickness: 0.062 mm, Conditions of use: Splashing)	Replace gloves in case of any sign of damage. For prolonged periods of exposure to the product for professional users/industrials, we recommend using CE III gloves in line with standards EN ISO 21420:2020 and EN ISO 374-1:2016+A1:2018

As the product is a mixture of several substances, the resistance of the glove material can not be calculated in advance with total reliability and has therefore to be checked prior to the application.

### D.- Eye and face protection

Pictogram	PPE	Remarks
Mandatory face protection	Panoramic glasses against splash/projections.	Clean daily and disinfect periodically according to the manufacturer's instructions. Use if there is a risk of splashing.

#### E.- Body protection

Pictogram	PPE	Remarks
	Work clothing	Replace before any evidence of deterioration. For periods of prolonged exposure to the product for professional/industrial users CE III is recommended, in accordance with the regulations in EN ISO 6529:2013, EN ISO 6530:2005, EN ISO 13688:2013, EN 464:1994.
Mandatory complete body protection	Antistatic and fireproof protective clothing	Limited protection against flames.
Mandatory foot protection	Safety footwear with antistatic and heat resistant properties	Replace boots at any sign of deterioration.

It is advised to implement additional emergency equipments in workplaces that are particularly exposed to the product or in situations where risk assessments highlight the necessity of such equipments.

#### **Environmental exposure controls:**

To comply with environmental protection regulations, it is recommended to prevent any spillage of the product and its container. For more detailed information, please refer to subsection 7.1.D.

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

# 9.1 Information on basic physical and chemical properties:

## Appearance:

Physical state at 20 °C:

Appearance:

Colour:

Odour:

Odour threshold:

Aerosol

Transparent

Yellowish

Scented

Not relevant \*

Volatility:

Boiling point at atmospheric pressure: -42 °C (Propellant)

\*Not relevant due to the nature of the product, not providing information property of its hazards.

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 7/15





According to UK REACH (S.I. 2019/758)

## Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

# SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

Vapour pressure at 20 °C: Not relevant \*

Vapour pressure at 50 °C: <300000 Pa (300 kPa)

Evaporation rate at 20 °C: Not relevant \*

**Product description:** 

Density at 20 ºC: Not relevant \* Not relevant \* Relative density at 20 ºC: Dynamic viscosity at 20 ºC: Not relevant \* Kinematic viscosity at 20 °C: Not relevant \* Kinematic viscosity at 40 ºC: Not relevant \* Concentration: Not relevant \* pH: Not relevant \* Vapour density at 20 ºC: Not relevant \* Partition coefficient n-octanol/water 20 ºC: Not relevant \*

Solubility in water at 20 °C: Not relevant \*

Solubility properties: Soluble

Decomposition temperature: Not relevant \*
Melting point/freezing point: Not relevant \*

Recipient pressure: 299975 - 399967 Pa (3 - 4 bar)

Flammability:

Flash Point:

Flammability (solid, gas):

Autoignition temperature:

Lower flammability limit:

Upper flammability limit:

Not relevant \*

Not relevant \*

Particle characteristics:

Median equivalent diameter: Not relevant \*

9.2 Other information:

Information with regard to physical hazard classes:

Explosive properties: Not relevant \*
Oxidising properties: Not relevant \*
Corrosive to metals: Not relevant \*
Heat of combustion: Not relevant \*
Aerosols-total percentage (by mass) of flammable Not relevant \*

components:

Other safety characteristics:

Surface tension at 20 °C: Not relevant \* Refraction index: Not relevant \* \* Not relevant \* \* Not relevant due to the nature of the product, not providing information property of its hazards.

# **SECTION 10: STABILITY AND REACTIVITY**

#### 10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7 from Safety Data Sheet.

## 10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 8/15



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

### SECTION 10: STABILITY AND REACTIVITY (continued)

### 10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

#### 10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Precaution	Precaution	Risk of combustion	Avoid direct impact	Not applicable

#### 10.5 Incompatible materials:

Acids	Water	Oxidising materials	Combustible materials	Others
Avoid strong acids	Not applicable	Avoid direct impact	Not applicable	Avoid alkalis or strong bases

#### 10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO<sub>2</sub>), carbon monoxide and other organic compounds.

### **SECTION 11: TOXICOLOGICAL INFORMATION**

#### 11.1 Information on toxicological effects:

The experimental information related to the toxicological properties of the product itself is not available

Contains glycols. It is recommended not to breathe the vapours for prolonged periods of time due to the possibility of effects that are hazardous to the health .

#### Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

- A- Ingestion (acute effect):
  - Acute toxicity: Based on available data, the classification criteria are not met, however, it contains substances classified as dangerous for consumption. For more information see section 3.
  - Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.
- B- Inhalation (acute effect):
  - Acute toxicity: Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.
  - Corrosivity/Irritability: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.
- C- Contact with the skin and the eyes (acute effect):
  - Contact with the skin: Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for skin contact. For more information see section 3.
  - Contact with the eyes: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.
- D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):
  - Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for the effects mentioned. For more information see section 3.
  - Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
  - Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- E- Sensitizing effects:
  - Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous with sensitising effects. For more information see section 3.
  - Skin: Based on available data, the classification criteria are not met. However, it contains substances classified as dangerous with sensitising effects. For more information see section 3.
- F- Specific target organ toxicity (STOT) single exposure:



According to UK REACH (S.I. 2019/758)

# **Handy Foam** A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 11: TOXICOLOGICAL INFORMATION (continued)

Based on available data, the classification criteria are not met. However, it contains substances classified as hazardous for inhalation. For more information see section 3.

- G- Specific target organ toxicity (STOT)-repeated exposure:
  - Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.
  - Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- H- Aspiration hazard:

Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

## Other information:

Not relevant

## Specific toxicology information on the substances:

Identification	Acute	e toxicity	Genus
propan-2-ol	LD50 oral	>5840 mg/kg	Rat
CAS: 67-63-0	LD50 dermal	>13900 mg/kg	Rabbit
EC: 200-661-7	LC50 inhalation vapour	>25 mg/L (6 h)	Rat
2-butoxyethanol	LD50 oral	1200 mg/kg	Rat
CAS: 111-76-2 EC: 203-905-0	LD50 dermal	>2000 mg/kg	
	LC50 inhalation vapour	3 mg/L (0 h) (ATEi)	
Petroleum gases, liquefied, < 0.1 % EC 203-450-8	LD50 oral	>2000 mg/kg	
CAS: 68476-85-7 EC: 270-704-2	LD50 dermal	>2000 mg/kg	
	LC50 inhalation gases	>20000 mg/L	
d-limonene	LD50 oral	4400 mg/kg	Rat
CAS: 5989-27-5	LD50 dermal	>5000 mg/kg	Rabbit
EC: 227-813-5	LC50 inhalation vapour	>20 mg/L	
2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	LD50 oral	1000 mg/kg	Rat
CAS: 4719-04-4	LD50 dermal	>2000 mg/kg	
EC: 225-208-0	LC50 inhalation vapour	0.5 mg/L	Rat
2-aminoethanol	LD50 oral	1515 mg/kg	Rat
CAS: 141-43-5	LD50 dermal	2504 mg/kg	Rabbit
EC: 205-483-3	LC50 inhalation vapour	11 mg/L	
1,2-benzisothiazol-3(2H)-one	LD50 oral	450 mg/kg	
CAS: 2634-33-5	LD50 dermal	>2000 mg/kg	
EC: 220-120-9	LC50 inhalation dust	0.05 mg/L	

Physical form mist may occur during some expected use of the product

# **SECTION 12: ECOLOGICAL INFORMATION**

The experimental information related to the eco-toxicological properties of the product itself is not available

Based on available data, the classification criteria are not met. However, it does contain substances classified as hazardous for this effect. For more information see section 3.

#### Toxicity: 12.1

## Acute toxicity:

Identification	Concentration		Species	Genus
propan-2-ol	LC50	9640 mg/L (96 h)	Pimephales promelas	Fish
CAS: 67-63-0	EC50	10000 mg/L (24 h)	Daphnia magna	Crustacean
	EC50	Not relevant		

- CONTINUED ON NEXT PAGE -



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

# SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification		Concentration	Species	Genus	
2-butoxyethanol	LC50	1490 mg/L (96 h)	Lepomis macrochirus	Fish	
CAS: 111-76-2	EC50	1815 mg/L (48 h)	Daphnia magna	Crustacean	
	EC50	911 mg/L (72 h)	Pseudokirchneriella subcapitata	Algae	
d-limonene	LC50	0.702 mg/L (96 h)	Pimephales promelas	Fish	
CAS: 5989-27-5	EC50	0.577 mg/L (48 h)	Daphnia magna	Crustacean	
	EC50	Not relevant			
2-aminoethanol	LC50	349 mg/L (96 h)	Cyprinus carpio	Fish	
CAS: 141-43-5	EC50	65 mg/L (48 h)	Daphnia magna	Crustacean	
	EC50	22 mg/L (72 h)	Scenedesmus subspicatus	Algae	
1,2-benzisothiazol-3(2H)-one	LC50	2.18 mg/L (96 h)	Oncorhynchus mykiss	Fish	
CAS: 2634-33-5	EC50	2.9 mg/L (48 h)	Daphnia magna	Crustacean	
	EC50	0.11 mg/L (72 h)	Pseudokirchneriella subcapitata	Algae	

### **Chronic toxicity:**

Identification	Concentration		Species	Genus
2-butoxyethanol	NOEC	100 mg/L	Danio rerio	Fish
CAS: 111-76-2	NOEC	100 mg/L	Daphnia magna	Crustacean
2-aminoethanol	NOEC	1.24 mg/L	Oryzias latipes	Fish
CAS: 141-43-5	NOEC	0.85 mg/L	Daphnia magna	Crustacean

# 12.2 Persistence and degradability:

### Substance-specific information:

Identification	Deg	radability	Biodegrada	bility
propan-2-ol	BOD5	1.19 g O2/g	Concentration	100 mg/L
CAS: 67-63-0	COD	2.23 g O2/g	Period	14 days
EC: 200-661-7	BOD5/COD	0.53	% Biodegradable	86 %
2-butoxyethanol	BOD5	0.71 g O2/g	Concentration	100 mg/L
CAS: 111-76-2	COD	2.2 g O2/g	Period	14 days
EC: 203-905-0	BOD5/COD	0.32	% Biodegradable	96 %
d-limonene	BOD5	Not relevant	Concentration	10 mg/L
CAS: 5989-27-5	COD	Not relevant	Period	28 days
EC: 227-813-5	BOD5/COD	Not relevant	% Biodegradable	71.4 %
2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	BOD5	Not relevant	Concentration	50.7 mg/L
CAS: 4719-04-4	COD	Not relevant	Period	8 days
EC: 225-208-0	BOD5/COD	Not relevant	% Biodegradable	100 %
2-aminoethanol	BOD5	Not relevant	Concentration	20 mg/L
CAS: 141-43-5	COD	Not relevant	Period	21 days
EC: 205-483-3	BOD5/COD	Not relevant	% Biodegradable	90 %
1,2-benzisothiazol-3(2H)-one	BOD5	Not relevant	Concentration	1 mg/L
CAS: 2634-33-5	COD	Not relevant	Period	63 days
EC: 220-120-9	BOD5/COD	Not relevant	% Biodegradable	85 %

### 12.3 Bioaccumulative potential:

# Substance-specific information:

Identification	Bioaccumulation potential	
propan-2-ol	BCF	3
CAS: 67-63-0	Pow Log	0.05
EC: 200-661-7	Potential	Low
2-butoxyethanol	BCF	3
CAS: 111-76-2	Pow Log	0.83
EC: 203-905-0	Potential	Low
d-limonene	BCF	660
CAS: 5989-27-5	Pow Log	4.83
EC: 227-813-5	Potential	High

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 11/15



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Bioaccu	Bioaccumulation potential		
2-aminoethanol	BCF	3		
CAS: 141-43-5	Pow Log	-1.31		
EC: 205-483-3	Potential	Low		
1,2-benzisothiazol-3(2H)-one	BCF	7		
CAS: 2634-33-5	Pow Log	0.7		
EC: 220-120-9	Potential	Low		

### 12.4 Mobility in soil:

Identification	Absor	Absorption/desorption		tility
propan-2-ol	Кос	1.5	Henry	8.207E-1 Pa·m³/mol
CAS: 67-63-0	Conclusion	Very High	Dry soil	Yes
	Surface tension	2.24E-2 N/m (25 ºC)	Moist soil	Yes
2-butoxyethanol	Кос	8	Henry	1.621E-1 Pa·m³/mol
CAS: 111-76-2	Conclusion	Very High	Dry soil	Not relevant
	Surface tension	2.729E-2 N/m (25 ºC)	Moist soil	Yes
d-limonene	Кос	6324	Henry	Not relevant
CAS: 5989-27-5	Conclusion	Immobile	Dry soil	Not relevant
	Surface tension	2.675E-2 N/m (25 ºC)	Moist soil	Not relevant
2,2',2''-(hexahydro-1,3,5- triazine-1,3,5-triyl)triethanol	Кос	10	Henry	Not relevant
CAS: 4719-04-4	Conclusion	Very High	Dry soil	Not relevant
	Surface tension	Not relevant	Moist soil	Not relevant
2-aminoethanol	Кос	0.27	Henry	3.7E-5 Pa·m³/mol
CAS: 141-43-5	Conclusion	Very High	Dry soil	Not relevant
	Surface tension	5.025E-2 N/m (25 ºC)	Moist soil	Not relevant
1,2-benzisothiazol-3(2H)-one	Кос	9.33	Henry	Not relevant
CAS: 2634-33-5	Conclusion	Very High	Dry soil	Not relevant
	Surface tension	Not relevant	Moist soil	Not relevant

## 12.5 Results of PBT and vPvB assessment:

Product does not meet PBT/vPvB criteria

#### 12.6 Other adverse effects:

Not described

# **SECTION 13: DISPOSAL CONSIDERATIONS**

#### 13.1 Waste treatment methods:

Code	Description	Waste class
16 05 04*	gases in pressure containers (including halons) containing hazardous substances	Hazardous

## Type of waste:

HP3 Flammable, HP6 Acute Toxicity

## Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance The Waste (England & Wales) Regulations 2011, 2011 No. 988. As under 15 01 of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-hazardous residue. Waste should not be disposed of to drains. See paragraph 6.2.

# Regulations related to waste management:

In accordance with Annex II of UK REACH the provisions related to waste management are stated:

UK legislation: The Waste (England & Wales) Regulations 2011.

## **SECTION 14: TRANSPORT INFORMATION**

Transport of dangerous goods by land:

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 12/15



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 14: TRANSPORT INFORMATION (continued)

With regard to ADR 2025 and RID 2025:



14.1 UN number: UN195014.2 UN proper shipping name: AEROSOLS

14.3 Transport hazard class(es): 2
Labels: 2.1

14.4 Packing group: N/A
14.5 Environmental hazards: No

14.6 Special precautions for user

Tunnel restriction code: D

Physico-Chemical properties: see section 9 Limited quantities: 1 L

14.7 Transport in bulk according to Not relevant Annex II of Marpol and the IBC

Code:

## Transport of dangerous goods by sea:

With regard to IMDG 41-22:



14.1UN number:UN195014.2UN proper shipping name:AEROSOLS14.3Transport hazard class(es):2Labels:2

 Labels:
 2.1

 14.4
 Packing group:
 N/A

 14.5
 Marine pollutant:
 No

14.6 Special precautions for user

Special regulations: 63, 959, 190, 277, 327, 344

EmS Codes:F-D, S-UPhysico-Chemical properties:see section 9Limited quantities:1 L

Segregation group: Not relevant

14.7 Transport in bulk according to
Annex II of Marpol and the IBC

Code:

## Transport of dangerous goods by air:

With regard to IATA/ICAO 2025:



14.1 UN number: UN1950
14.2 UN proper shipping name: AEROSOLS
14.3 Transport hazard class(es): 2
Labels: 2.1

Labels: 2.1

14.4 Packing group: N/A

14.5 Environmental hazards: No

14.6 Special precautions for user

Physico-Chemical properties: see section 9 **14.7 Transport in bulk according to** Not relevant

Code:

# **SECTION 15: REGULATORY INFORMATION**

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

Annex II of Marpol and the IBC

- Substances listed in UK candidate list of substances of very high concern (SVHCs): Not relevant
- Substances listed in UK REACH Authorisation List (Annex 14): Not relevant

## The Detergents (Amendment) (EU Exit) Regulations:

In accordance with this regulation the product complies with the following:

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 13/15



According to UK REACH (S.I. 2019/758)

## Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

### SECTION 15: REGULATORY INFORMATION (continued)

The tensoactives contained in this mixture comply with the biodegradibility criteria stipulated in The Detergents (Amendment) (EU Exit) Regulations. The information to prove this is available to the relevant authorities of the Member States and will be shown to them by direct request or the request of a detergent manufacturer.

### Restrictions to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII UK REACH, etc ....):

Shall not be used in:

- -ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- -tricks and jokes,
- —games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

#### Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

#### Other legislation:

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2020.

Control of Substances Hazardous to Health Regulations 2002 (as amended)

EH40/2005 Workplace exposure limits.

The Aerosol Dispensers Regulations 2009

The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019: SCHEDULE 13 -Amendment of the Aerosol Dispensers Regulations 2009

The Product Safety and Metrology etc. (Amendment etc.) (UK(NI) Indication) (EU Exit) Regulations 2020

## **SECTION 16: OTHER INFORMATION**

#### Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with ANNEX II-The REACH etc. (Amendment etc.) (EU Exit) Regulations 2020.

### Texts of the legislative phrases mentioned in section 2:

H222: Extremely flammable aerosol.

H229: Pressurised container: May burst if heated.

# Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

## GB CLP Regulation (UK S.I. 2019/720 and UK S.I. 2020/1567):

Acute Tox. 2: H330 - Fatal if inhaled.

Acute Tox. 4: H302 - Harmful if swallowed.

Acute Tox. 4: H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled.

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

Aquatic Chronic 1: H410 - Very toxic to aquatic life with long lasting effects.

Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.

Asp. Tox. 1: H304 - May be fatal if swallowed and enters airways.

Eye Dam. 1: H318 - Causes serious eye damage.

Eye Irrit. 2: H319 - Causes serious eye irritation.

Flam. Gas 1A: H220 - Extremely flammable gas.

Flam. Liq. 2: H225 - Highly flammable liquid and vapour.

Flam. Liq. 3: H226 - Flammable liquid and vapour.

Press. Gas: H280 - Contains gas under pressure, may explode if heated.

Skin Corr. 1B: H314 - Causes severe skin burns and eye damage.

Skin Irrit. 2: H315 - Causes skin irritation.

Skin Sens. 1: H317 - May cause an allergic skin reaction.

Skin Sens. 1A: H317 - May cause an allergic skin reaction.

STOT RE 1: H372 - Causes damage to organs through prolonged or repeated exposure (oral).

STOT SE 3: H335 - May cause respiratory irritation.

STOT SE 3: H336 - May cause drowsiness or dizziness.

#### Classification procedure:

Aerosol 1: Calculation method

Aerosol 1: Calculation method

#### Advice related to training:

Training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

#### Principal bibliographical sources:

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4) Page 14/15



According to UK REACH (S.I. 2019/758)

# Handy Foam A104

Date of compilation: 13/07/2023 Revised: 31/07/2025 Version: 5 (Replaced 4)

## SECTION 16: OTHER INFORMATION (continued)

http://echa.europa.eu http://eur-lex.europa.eu

## Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road

IMDG: International maritime dangerous goods code IATA: International Air Transport Association ICAO: International Civil Aviation Organisation

COD: Chemical Oxygen Demand

BOD5: 5day biochemical oxygen demand

BCF: Bioconcentration factor LD50: Lethal Dose 50 LC50: Lethal Concentration 50 EC50: Effective concentration 50

LogPOW: Octanolwater partition coefficient Koc: Partition coefficient of organic carbon

UFI: unique formula identifier

IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at UK, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

- END OF SAFETY DATA SHEET -

Date of compilation: 13/07/2023