Version No: **1** Issue date: **30/APR/2024** Revision date: **Not Applicable**

Safety Data Sheet (Conforms to Annex II of REACH (1907/2006) - Regulation 2020/878)

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

1.1. Product Identifier

Product name	Clean Buffer 03
Synonyms	Not Available
Other means of identification	Not Available

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

Relevant identified uses	Laboratory use.
Uses advised against	Not Applicable

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**CleanNA**
Address	Coenecoop 75, 2741 PH, Waddinxveen, The Netherlands
Telephone	+31 (0) 182 22 33 50
Fax	+31 (0) 182 22 33 98
Website	www.cleanna.com
Email	info@cleanna.com

1.4. Emergency telephone number

Emergency telephone numbers	112 (European emergency number)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments	H314 – Skin Corrosion/Irritation – Category 1B

2.2. Label elements

Hazard pictogram(s)	

Signal word	**Danger**

Hazard statement(s)

H314	Causes sever skin burns and eye damage

Supplementary statement(s)

Not Applicable

Precautionary statement(s) Prevention

P260	Do not breathe vapours / mist / spray
P264	Wash all exposed external body areas thoroughly after handling
P280	Wear protective gloves, protective clothing, eye protection and face protection

Precautionary statement(s) Response

P310	Immediately call a POISON CENTER/doctor/physician/first aider.
P363	Wash contaminated clothing before re-use
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. DO NOT induce vomiting
P303 + P361 + P353	IF ON SKIN (r hair): take off immediately all contaminated clothing. Rinse skin with water (or shower).
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statement(s) Storage

P405	Store locked up

Precautionary statement(s) Disposal

P501	Dispose of contents / container to authorised hazardous or special waste collection point in accordance with any local regulation

Other hazards

Ingestion may produce health damage

Cumulative effects may result following exposure*.

Acetic acid global	Listed in the Europe regulation 9EC) No 1907/2006 – Annex XVII (restrictions may apply).

SECTION 3. Composition / information on ingredients

3.1 Substances

See 'Composition on ingredients' in Section 3.2

3.2 Mixtures

1. CAS No **2. EC No** **3. Index No** **4. REACH No**	**%[weight]**	**Name**	**Classification according to regulation (EC) No 1272/2008 [CLP] and amendments**	**SCL / M-Factor**	**Nanoform Particle Characteristics**
1. 64-19-7 2. 200-580-7 3. 607-002-00-6 4. Not Available	25 - 50	Acetic acid glacial *	Flammable Liquids – Category 3 Corrosion/Irritation - Category 1A H226, H314 [2]	Skin Corr. 1A; H314: C >= 90% Skin Corr. 1B; H314: 25% <= C <= 90% Skin Irrit. 2; H315: 10% <= C <= 25% Eye Irrit. 2; H319: 10% <= C <= 25%	Not Available
Legend:	*2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*				

SECTION 4. First aid measures

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: - Immediately hold eyelids apart and flush the eye continuously with running water. - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. - Transport to hospital or doctor without delay. - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: - Immediately flush body and clothes with large amounts of water using safety shower if available. - Immediately remove all contaminated clothing, including footwear. - Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre. - Transport to hospital, or doctor.
Inhalation	- If fumes or combustion products are inhaled remove from contaminated area. - Lay patient down. Keep warm and rested. - Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. - Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. - Transport to hospital, or doctor, without delay.
Ingestion	- **IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.** - For advice, contact a Poisons Information Centre or a doctor. Urgent hospital treatment is likely to be needed. - In the meantime, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition. - If the services of a medical officer or medical doctor are readily available, the patient should be placed in his/her care and a copy of the SDS should be provided. Further action will be the responsibility of the medical specialist. - If medical attention is not available on the worksite or surroundings send the patient to a hospital together with a copy of the SDS. **Where medical attention is not immediately available or where the patient is more than 15 minutes from a hospital or unless instructed otherwise:** - **INDUCE** vomiting with fingers down the back of the throat, **ONLY IF CONSCIOUS**. Lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. **NOTE:** Wear a protective glove when inducing vomiting by mechanical means.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11

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

For acute or short term repeated exposures to strong acids:

- Airway problems may arise from lanyngeal edema and inhalation exposure. Treat with 100% oxygen initially
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling
- Intravenous lies should be established immediately in all cases where there is evidence of circulatory compromise
- Strong acids produce a coagulation necrosis characterised by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues.

INGESTION:

- Immediate dilution (milk or water) within 30 minutes post ingestion is recommended
- DO NOT attempt to neutralise the acid since exothermic reaction may extend the corrosive injury
- Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- Charcoal has NO place in acid management
- Some authors suggest the use of lavage within one hour of ingestion

SKIN:

- Skin lesions require copious saline irrigation. Taste chemical burns as thermal burns with non-adherent gauze and wrapping.
- Deep second=degree burns may benefit from topical silver sulfadiazine

EYE:

- Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 minutes DO NOT use neutralizing agents or any other additives. Several litres of saline are required.
- Cycloplegic drops (1% cyclopentolate for short-term use or 5% homatropine for longer term use) antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury
- Steroid eye drops should only be administered with approval of a consulting ophthalmologist

[Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5. Firefighting measures

5.1 Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

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5.2 Special hazards arising from the substrate or mixture

Fire Incompatibility	Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	- Alert Fire Brigade and tell them location and nature of hazard. - Wear full body protective clothing with breathing apparatus. - Prevent, by any means available, spillage from entering drains or water course. - Use water delivered as a fine spray to control fire and cool adjacent area. - Avoid spraying water onto liquid pools. - **DO NOT** approach containers suspected to be hot. - Cool fire exposed containers with water spray from a protected location. - If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	- Combustible. - Slight fire hazard when exposed to heat or flame. - Acids may react with metals to produce hydrogen, a highly flammable and explosive gas. - On combustion, may emit toxic fumes of carbon monoxide (CO). - May emit acrid smoke and corrosive fumes. Combustion products include: carbon dioxide (CO2) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes..

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

See section 8

6.2 Environmental precautions

See section 12

6.3 Methods and material for containment and cleaning up

Minor Spills	- Remove all ignition sources. - Clean up all spills immediately. - Avoid breathing vapours and contact with skin and eyes. - Control personal contact with the substance, by using protective equipment. - Contain and absorb spill with sand, earth, inert material or vermiculite. - Wipe up. - Place in a suitable, labelled container for waste disposal.

Major Spills	Moderate hazard. - Clear area of personnel and move upwind. - Alert Fire Brigade and tell them location and nature of hazard. - Wear breathing apparatus plus protective gloves. - Prevent, by any means available, spillage from entering drains or water course. - No smoking, naked lights or ignition sources. - Increase ventilation. - Stop leak if safe to do so. - Contain spill with sand, earth or vermiculite. - Collect recoverable product into labelled containers for recycling. - Absorb remaining product with sand, earth or vermiculite. - Collect solid residues and seal in labelled drums for disposal. - Wash area and prevent runoff into drains. - If contamination of drains or waterways occurs, advise emergency services

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe handling	- Avoid all personal contact, including inhalation. - Wear protective clothing when risk of exposure occurs. - Use in a well-ventilated area. - Prevent concentration in hollows and sumps. - **DO NOT** enter confined spaces until atmosphere has been checked. - Avoid smoking, naked lights or ignition sources. - Avoid contact with incompatible materials. - When handling, **DO NOT** eat, drink or smoke. - Keep containers securely sealed when not in use. - Avoid physical damage to containers. - Always wash hands with soap and water after handling. - Work clothes should be laundered separately. - Use good occupational work practice. - Observe manufacturer's storage and handling recommendations contained within this SDS. - Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. - **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	- Store in original containers. - Keep containers securely sealed. - No smoking, naked lights or ignition sources. - Store in a cool, dry, well-ventilated area. - Store away from incompatible materials and foodstuff containers. - Protect containers against physical damage and check regularly for leaks. - Observe manufacturer's storage and handling recommendations contained within this SDS

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	- Metal can or drum - Polyliner dum - Plastic pail - Lined metal can, lined metal pail/can - Packaging as recommended by manufacturer. - Check all containers are clearly labelled and free from leaks
Storage incompatibility	Acetic acid: - Avoid reaction with oxidising agents - Avoid strong bases - Attacks many form of rubber, plastics and coatings - Attacks cast iron, stainless steel and other metals forming flammable hydrogen gas - Vapours form explosive mixtures with air (above 39 degC) - Reacts violently with bases such as carbonates and hydroxides (giving large quantities of heat), oxidisers, organic amines, acetaldehyde, potassium tert-butoxide - Reacts (sometimes violently) with strong acids, aliphatic amines, alkanolamines, alkylene oxides, epichlorohydrin, acetic anhydride. 2-aminoethanol, ammonia, ammonium nitrate, bromine pentafluoride, chlorosulfonic acid, chromic acid, chromium trioxide, ethylenediamine, ethyleneimine, hydrogen peroxide, isocyanates, oleum, perhlorocacid, permangantes, phosphorus isocyanate, phosphorus trichloride, - Sodium peroxide, xylene - Reacts with mild steel, galvanised steel / zinc producing hydrogen gas which may form an explosive mixture with air
Hazard categories in accordance with Regulation (EC) No 1272/2008	Not available

Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not available

7.3. Specific end use(s)

See section 1.2

SECTION 8. Exposure controls / personal protection

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker			PNECs Compartment	
Acetic acid global	Inhalation	25 mg/m^3	(Local, Chronic)	3.058 mg/L	(Water (Fresh))
	Inhalation	25 mg/m^3	(Local, Acute)	0.306 mg/L	(Water – Intermittent release)
	Inhalation	*25 mg/m^3*	*(Local, Chronic)* *	30.58 mg/L	(Water (Marine))
	Inhalation	*25 mg/m^3*	*(Local, Acute)* *	11.36 mg/kg sediment dw	(Sediment (Fresh Water))
				1.136 mg/kg sediment dw	(Sediment (Marine))
				0.47 mg/kg soil dw	(Soil)
				85 mg/L	(STP)

* Values for General Population

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Netherlands Occupational Exposure Limits	Acetic acid glacial	Azijnzuur (ethaanzuur)	25 mg/m^3	50 mg/m^3	Not Available	A
EU Consolidated List of Indicative Occupational Exposure Limit values (IOELVs)	Acetic acid glacial	Acetic acid	10 ppm / 25mg/m^3	50 mg/m^3 / 20 ppm	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-1	TEEL-2	TEEL-3
Acetic acid glacial	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
Acetic acid glacial	50 ppm	Not Available

8.2. Exposure controls

8.2.1 Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. Air contaminants generated in the workplace possess varying 'escape' velocities which, in turn, determine the 'capture velocities' of fresh circulating air required to effectively remove the contaminant.

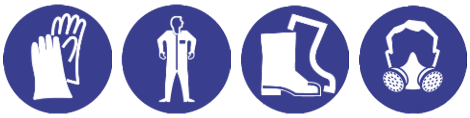
Type of contaminant	Air Speed
Solvent, vapours, degreasing etc. evaporating from tank (in still air)	0.25 – 0.5 m/s (50 – 100 f/min)
Aerosols, fumes form pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5 – 1 m/s (100 – 200 f/min)
Direct spray, spray painting in shallow boots, drum filling, conveyer loading, crusher debts, gas discharge (active generation into zone of rapid air motion)	1 – 2.5 m/s (200 – 500 f/min)
Grinding, abrasive blasting, tumbling, high speed generated dusts (released at high velocity into zone of very high rapid air motion)	2.5 – 10 m/s (500 – 200 f/min)

Within each range the appropriate value depends to:

Lower end of range	Upper end of range
1: Room air currents minimal of favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only	2: Contaminants of high toxicity
3: Intermittent, low production	3: High Production, heavy use
4: Large hood or large air mass in motion	4: Small hood – local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

8.2.2. Personal protection



Eye and face protection

- Safety glasses with unperforated side shields may be used where continuous eye protection is desirable. As in laboratories, spectacles are not sufficient where complete eye protection is needed such as when handling bulk-quantities where there is a danger of splashing or I the material may be under pressure
- Chemical goggles whenever there is a danger of the material coming in contact with the eyes. Goggles must be properly fitted.
- Full face shield (20 cm, 8 in minimum) may be required for supplementary but never for primary protection of the eyes. These afford face protection.
- Alternatively a gas mask may replace splash goggles and face shields.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection

See Hand protection below

Hand / feet protection

- Elbow length PVC gloves
- When handling corrosive liquids wear trousers or overalls outside of boots to avoid spills entering boots

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.

· Contaminated gloves should be replaced.
As defined in ASTM F-739-96 in any application, gloves are rated as:
· Excellent when breakthrough time > 480 min
· Good when breakthrough time > 20 min
· Fair when breakthrough time < 20 min
· Poor when glove material degrades
For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.
It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.
Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.
Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:
· Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
· Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Body protection

See Other protection below

Other protection

- Overalls
- PVC apron
- Barrier cream
- skin cleansing cream
- eye wash unit

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the **Forsberg Clothing Performance Index.**

The effect(s) of the flowing substance(s) are taken into account in the **computer-generated** selection: Clean Buffer 03

Material	PI
BUTYL	A
NEOPRENE	A
NITRILE + PVC	A
PE	A
PE / EVAL / PE	A
PVC	A
SARANEX-23	A
TEFLON	A
BUTYL / NEOPRENE	B
NATURAL RUBBER	B
NATURAL + NEOPRENE	B
NITRILE	B
NAT + NEOPR + NITRILE	C

PI = Performance Index
A = Best selection
B = Satisfactory. May degrade after 4 hours of continuous immersion.
C = Poor to Dangerous Choice for other than short term immersion.

NOTE:

- As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation.
- Where the glove is to be used on short term, casual of infrequent basis, factors such as “feel” or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequents use. A qualified practitioner should be consulted.

Type AB-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent).

Where the concentration of gas / particulates in the breathing zone, approaches or exceeds the “Exposure Standard” (ES), respiratory protection is required.
Degree of protection varies with both face-piece and Class of filter. The nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-face respirator	Full-Face respirator	Powered Air respirator
Up to 10 x ES	AB-AUS P2	-	AB-PAPR-AUS / Class 1 P2
Up to 50 x ES	-	AB-AUS / Class 1 P2	-
Up to 100 x ES	-	AB-2 P2	AB-PAPR-2 P2 ^

^ = Full Face
A (All classes) = Organic vapours,
B AUS or B1 = Acid gasses,
B2 = Acid gas or hydrogen cyanide(HCN),
B3 = Acid gas or hydrogen cyanide(HCN),
E = Sulfur dioxide(SO2),
G = Agricultural chemicals,
K = Ammonia (NH3),
Hg = Mercury,
NO = Oxides of nitrogen,
MB = Methyl bromide,
AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content;
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate;
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used.

8.2.3. Environmental exposure controls

See section 12

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not Available

Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	Not Available	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Immiscible	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10. Stability and reactivity

10.1.Reactivity	See section 7.2
10.2. Chemical stability	- Unstable in the presence of incompatible materials. - - Product is considered stable.- - Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Inhaled	- The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage - Corrosive acids can cause irritation of the respiratory tract with coughing, choking, and mucous membrane damage. There may be dizziness, headache, nausea and weakness - There is strong evidence to suggest that this material can cause, if inhaled once, serious, irreversible damage or organs - Inhalation of quantities f liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary oedema - Minor acetic acid exposure may cause temporary loss of voice while severe acute vapour exposure may cause fluid accumulation in the lungs. Exposure at 800 – 1200 ppm cannot be tolerated longer than 3 minutes.
Ingestion	- Strong evidence that exposure to the material may cause irreversible damage (other than cancer, mutations and birth defects) following a single exposure by swallowing - Ingestion of acidic corrosives may produce burns around and in the mouth, throat and oesophagus. Immediate pain and difficulties in swallowing and speaking may also be evident - The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence - Ingestion of low-molecular organic acid solutions may produce spontaneous haemorrhaging, production of blood clots, gastrointestinal damage and narrowing of the oesophagus and stomach entry - Ingestion of acetic acid may cause delayed stomach, intestinal and oesophageal perforation, and death in severe cases - Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	- There is strong evidence to suggest that this material, on a single contact with skin, can cause serious, irreversible damage of organs - Skin contact with acidic corrosives may result in pain and burns. These may be deep with distinct edges and may heal slowly with the formation of scar tissue - Open cuts, abraded or irritated skin should not be exposed to this material - Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to use of the material and ensure that any external damage is suitably protected - Action of acetic acid on the skin may be delayed and insidious - Skin contact with the material may be harmful. Systemic effects may result following absorption - The material may cause severe inflammation of the skin either following direct contact with the skin or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.
Eye	- Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns - Mild burns of the epithelia generally recover rapidly and completely - If applied to the yes, this material causes severe eye damage - Irritation of the eyes may produce a heavy secretion or tears (lachrymation) - Solutions of low-molecular weight organic acids cause pain and injury to the eyes - Acetic acid produces eye irritation at concentrations below 10 ppm
Chronic	- Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and/or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs - Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs of biochemical systems - Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems - Repeated minor exposure to acetic aced by mouth can cause blackening of the skin and teeth, erosion of the teeth, vomiting, diarrhea and nausea - Repeated minor vapour exposure may cause chronic inflammation of the airways and bronchitis. Results from testing are mixed, with one report indicating only slight irritation to the airways, stomach and skin, while another reported inflammation of the conjunctiva, bronchi, pharynx ad erosion of teeth - Exposure to higher levels caused blackening and hyperkeratosis of the skin and hands. Heartburn and constipation have als been reported with prolonged exposures.

	TOXICITY		**IRRITATION**		
Clean Buffer 03	Not Available		Not Available		
Acetic acid glacial	Dermal (rabbit) LD50	1060 mg/kg [2]	Eye (rabbit)	0.05 mg (open)	SEVERE
	Inhalation (mouse) Lc50	1.405 mg/24hr [2]	Skin (human)	50 mg/24hr	mild
	Oral (rat) LD50	3310 mg/kg [2]	Skin (rabbit)	525 mg (open)	SEVERE
Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*				

Acetic acid glacial	- The material may produce severe irritation to the eye causing pronounced inflammation - Repeated or prolonged exposure to irritants may produce conjunctivitis - The material my cause severe skin irritation after prolonged or repeated exposure nad may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. - Repeated exposures may produce severe ulceration.
Clean Buffer 03 & acetic acid global	- Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as Reactive Airways Dysfunction Syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates elated to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. - **For acid mists, aerosols**, vapours: test results suggest that eukaryotic cells are susceptible to genetic damage when the pH falls to about 6.5. Cells from the respiratory tract have not been examined in this respect. Mucous secretion may protect the cells of the airway from the direct exposure to inhaled acidic mists (which also protects the stomach lining from the hydrochloric acid secreted there). - Prolonged or repeated exposure to acetic acid may produce irritation and/or corrosion at the site of contact as well as systemic toxicity - Prolonged inhalation exposure results in muscle imbalance, increase in blood cholinesterase activity, decrease n albumin and decreased growth but no reproductive or foetal toxicity, according to animal testing.

Acute Toxicity	✗	**Carcinogenicity**	✗
Skin Irritation/Corrosion	✓	**Reproductivity**	✗
Serious Eye Damage/Irritation	✗	**STOT - Single Exposure**	✗
Respiratory or Skin sensitisation	✗	**STOT - Repeated Exposure**	✗
Mutagenicity	✗	**Aspiration Hazard**	✗

Legend: ✗ *– Data either not available or does not fill the criteria for classification*
✓ *– Data available to make classification*

11.2. Information on other hazards

1. Endocrine Disruption Properties

Not Available

2. Other Information

See Section 11.1

SECTION 12. Ecological information

12.1 Toxicity

	Endpoint	**Test duration (hr)**	**Species**	**Value**	**Source**
Clean Buffer 03	Not available	Not available	Not available	*Not available*	*Not available*
Acetic acid glacial	EC50(ECx)	24	Algae or other aquatic plants	0.08 mg/L	2
	EC50	72	Algae or other aquatic plants	29.23 mg/L	2
	LC50	96	Fish	31.3 – 67.6 mg/L	2
	EC50	96	Algae or other aquatic plants	73.4 mg/L	4
	EC50	48	Crustacea	18.9 mg/L	2
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data*				

Exotoxicity
The tolerance of water organisms towards pH margin and variation is diverse. Recommended pH values for test species listed in OECD guidelines are between 6.0 and almost 9.0. Acute testing with fish showed 96h-LC50 at about pH 3.5

Acetic acid is not acutely toxic to fish or invertebrates.

For acetic acid:
Acetic acid and its slats (the acetates) can be grouped together because of their close structural relationships, their natural occurrence in plants and animals, and their atmospheric role in cell metabolism.

Atmospheric Fate:
Acetic acid is degraded photochemically in the atmosphere to produce hydroxyl radicals 9estimated typical half-life of 22 days). Physical removal of acetates on atmospheric particulates may occur via wet or dry deposition.

Aquatic Fate:
Natural water will neutralize dilute solutions of acetic acid. Spills o f acetic acid on soil will readily biodegrade – the biodegradation rate for acetic acid after 14 days and under aerobic conditions is 74 days. Acetic acid is not expected to bioconcentrate in aquatic systems. Drinking water standards: none available.

Terrestial Fate:
Spills of acetic acid on soil will readily biodegrade - the biodegradation rate for acetic acid after 14 days and under aerobic conditions is 74 days.

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Acetic acid glacial	LOW	LOW

12.3. Bio accumulative potential

Ingredient	Bioaccumulation
Acetic acid glacial	LOW (LogKOW = -.017)

12.4. Mobility in soil

Ingredient	Mobility
Acetic acid glacial	HIGH (KOC = 1)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	✗

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine Disruption Properties

Not Available

12.7. Other adverse effects

Not Available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Product / Packaging disposal	Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: - Reduction - Reuse - Recycling - Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. - **DO NOT** allow wash water from cleaning or process equipment to enter drains. - It may be necessary to collect all wash water for treatment before disposal. - In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. - Where in doubt contact the responsible authority. - Recycle wherever possible or consult manufacturer for recycling options. - Consult State Land Waste Authority for disposal. - Bury or incinerate residue at an approved site. - Recycle containers if possible, or dispose of in an authorised landfill.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Class	Not Applicable
	Sub risk	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Hazard identification (Kemler)	Not Applicable
	Classification code	Not Applicable
	Hazard Label	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Tunnel Restriction Code	Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	ICAO/IATA Class	Not Applicable
	ICAO / IATA Sub risk	Not Applicable
	ERG Code	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	Special provisions	Not Applicable
	Cargo Only Packing Instructions	Not Applicable
	Cargo Only Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Packing Instructions	Not Applicable
	Passenger and Cargo Maximum Qty / Pack	Not Applicable
	Passenger and Cargo Limited Quantity Packing Instructions	Not Applicable
	Passenger and Cargo Limited Maximum Qty / Pack	Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	IMDG Class	Not Applicable
	IMDG Sub risk	Not Applicable
14.4. **Packing group**	Not Applicable	
14.5. **Environmental hazard**	Not Applicable	
14.6. **Special precautions for user**	EMS Number	Not Applicable
	Special provisions	Not Applicable
	Limited Quantities	Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Not applicable	Not Applicable
14.4. **Packing group**	Not applicable	
14.5. **Environmental hazard**	Not applicable	

14.6 **Special precautions for user**	Classification code	Not Applicable
	Special provisions	Not Applicable
	Limited quantity	Not Applicable
	Equipment required	Not Applicable
	Fire cones number	Not Applicable

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

Not Applicable

14.8. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	**Group**
Acetic acid glacial	Not Available

14.9. Transport in bulk in accordance with the ICG Code

Product name	**Group**
Acetic acid glacial	Not Available

SECTION 15. Regulatory information

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

Acetic acid glacial is found on the following regulatory lists

EU Consolidated List of Indicative Occupational Exposure Limit values (IOELVs)		European Union – European Inventory of Existing Commercial Chemical Substances (EINECS)
EU REACH Regulation (EC) No 1907/2006 – Annex XVII – restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.		European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures – Annex VI
Europe EC Inventory		Netherlands Occupational Exposure Limits

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA SUMMARY

Ingredient	**CAS number**	**Index No**	**ECHA Dossier**
Acetic acid glacial	64-19-7	607-002-00-6	Not Available
Harmonisation (C&L Inventory)	**Hazard Class and Category Code(s)**	**Pictograms Signal Word Code(s)**	**Hazard Statement Code(s)**
1	Flam. Liq. 3; Skin Corr. 1A	GHS02; GHS05; Dgr	H226; H314
2	Flam. Liq. 3; Skin Corr. 1A ; Eye Dam. 1 ; Acute Tox. 4 ; Acute Tox 4 ; Met. Corr. 1 ; Aquatic Chronic 3 ; STOT SE 1 ; Acute Tox. 4 ; STOT SE 3 ; Resp. Sens. 1	GHS05; Dgr; GHS01; GHS08; GHS04	H226; H314; H318; H312; H332; H290; H302; H412; H370; H335; H334

Harmonization Code 1 = The most prevalent classification. *Harmonization code 2 = The most severe classification*

National Inventory Status

National Inventory	**Status**
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (acetic acid glacial)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - FBEPH	Yes
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.*

SECTION 16. Other information

Full text Risk and Hazard codes

H226	Flammable liquid and vapour
H290	May be corrosive to metals
H302	Flammable liquid and vapour
H312	Harmful in contact with skin
H318	Causes serious eye damage
H332	Harmful if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335	May cause respiratory irritation
H370	Causes damage to organs
H412	Harmful to aquatic life with long lasting effects

Version Summary

Version	Date of Update	Sections Updated
1	30/APR/2024	Initial version

Other information

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
AIIC	Australian Inventory of Industrial Chemicals
BCF:	Bio Concentration Factors
BEI	Biological Exposure Index
DSL	Domestic Substances List
EINECS	European INventory of Existing Commercial chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS	Existing and New Chemical Substances Inventory
ES	Exposure Standard
FBEPH	Russian Register of Potentially Hazardous Chemical and Biological Substances
IARC	International Agency for Research on Cancer
IECSC	Inventory of Existing Chemical Substance in China
IDLH	Immediately Dangerous to Life or Health Concentrations
INSQ	Inventario Nacional de Sustancias Químicas
KECI:	Korea Existing Chemicals Inventory
LOAEL	Lowest Observed Adverse Effect Level
LOD	Limit Of Detection
NCI	National Chemical Inventory
NDSL	Non-Domestic Substances List
NLP	No-Longer Polymers
NOAEL	No Observed Adverse Effect Level
NZIoC:	New Zealand Inventory of Chemicals
OSF	Odour Safety Factor
OTV	Odour Threshold Value
PC	Permissible Concentration
PC-STEL	Permissible Concentration Short Term Exposure Limit
PICCS	Philippine Inventory of Chemicals and Chemical Substances
STEL	Short Term Exposure Limit
TCSI	Taiwan Chemical Substance Inventory
TEEL	Temporary Emergency Exposure Limit
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average