

## KITS SDS COVER SHEET

**Company** Thermo Fisher (Kandel) GmbH  
Erlenbachweg 2, 76870 Kandel, Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300

**Swiss distributor** - Fisher Scientific AG  
Neuhofstrasse 11, CH 4153 Reinach  
Tel: +41 (0) 56 618 41 11  
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

**Emergency Telephone Number** For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:  
Tox Info Suisse Emergency Number: **145 (24hr)**  
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)  
Chemtrec (24h) Toll-Free: 0800 564 402  
Chemtrec Local: +41-43 508 20 11 (Zurich)

**E-mail address** [begel.sdsdesk@thermofisher.com](mailto:begel.sdsdesk@thermofisher.com)

### Product Information

**Product Description:** Instrument Calibration (ICAL) Test Kit

**Product Identifier** **ALFAA35417**  
**Cat No. :** **35417**

**Recommended Use** Laboratory chemicals.

### Components

**Description** 35417A Instrument Calibration (ICAL) Solution A  
35417B Instrument Calibration (ICAL) Solution B

### Transport information

**UN-No** UN3264  
**Proper Shipping Name** Corrosive liquid, acidic, inorganic, n.o.s.  
**Technical Shipping Name** nitric acid/hydrochloric acid  
**Hazard Class** 8  
**Packing Group** II

Creation Date 26-Jul-2018

Revision Date 12-Dec-2024

Revision Number 2

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

### 1.1. Product identifier

Product Description: **Instrument Calibration (ICAL) Solution A**  
Cat No. : **35417A**

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

Recommended Use Laboratory chemicals.  
Uses advised against No Information available

### 1.3. Details of the supplier of the safety data sheet

#### Company

Thermo Fisher (Kandel) GmbH  
Erlenbachweg 2, 76870 Kandel, Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300

**Swiss distributor** - Fisher Scientific AG  
Neuhofstrasse 11, CH 4153 Reinach  
Tel: +41 (0) 56 618 41 11  
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

E-mail address [begel.sdsdesk@thermofisher.com](mailto:begel.sdsdesk@thermofisher.com)

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:  
Tox Info Suisse Emergency Number: **145 (24hr)**  
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)  
Chemtrec (24h) Toll-Free: 0800 564 402  
Chemtrec Local: +41-43 508 20 11 (Zurich)

## Section 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

**CLP Classification - Regulation (EC) No 1272/2008**

**Physical hazards**

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

Substances/mixtures corrosive to metal

Category 1 (H290)

## Health hazards

Skin Corrosion/Irritation

Category 1 B (H314)

Serious Eye Damage/Eye Irritation

Category 1 (H318)

## Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## 2.2. Label elements



Signal Word

Danger

## Hazard Statements

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

## Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or 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

P310 - Immediately call a POISON CENTER or doctor/physician

## 2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

## Section 3: Composition/information on ingredients

### 3.2. Mixtures

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Nitric acid	7697-37-2	231-714-2	5.0	Ox. Liq. 3 (H272) Met. Corr. 1 (H290) Acute Tox. 3 (H331) Skin Corr. 1A (H314) Eye Dam. 1 (H318) (EUH071)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
-----------	---------------------------------------	----------	-----------------

ALFAA35417A

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

Nitric acid	Ox. Liq. 2 :: C>=99% Ox. Liq. 3 :: 65%<=C<99% Acute Tox. 1 (inhal) :: C>=70% Acute Tox. 3 (inhal) :: 70%>C>=26.5% Acute Tox. 4 (inhal) :: 26.5%>C>=13.25% Skin Corr. 1A :: C>=20% Skin Corr. 1B :: 5%<=C<20% Met. Corr. 1 :: C>=2% EUH071 :: C>=20%	-	-
-------------	---	---	---

## Note

Elements and concentrations in ug/ml are as follows:

Ag 200, Ba 1000, Be 400, Cd 500, Co 1000, Cu 1000, Fe 1000, Mn 1000, Ni 1000, Pb 1000, Tl 1000, Zn 1000 (balance is water)

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid	-	-	ATE = 2.65 mg/L (vapours)

Full text of Hazard Statements: see section 16

## Section 4: First aid measures

### 4.1. Description of first aid measures

<b>Eye Contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.
<b>Ingestion</b>	Clean mouth with water and drink afterwards plenty of water.
<b>Inhalation</b>	Remove to fresh air.
<b>Self-Protection of the First Aider</b>	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

<b>Notes to Physician</b>	Treat symptomatically.
---------------------------	------------------------

## Section 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

### **Hazardous Combustion Products**

Nitrogen oxides (NO<sub>x</sub>).

## 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **Section 6: ACCIDENTAL RELEASE MEASURES**

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

Wear protective gloves/protective clothing/eye protection. Ensure adequate ventilation.

### 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

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

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13)

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## **Section 7: Handling and storage**

### 7.1. Precautions for safe handling

Ensure adequate ventilation.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

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

Keep container tightly closed in a dry and well-ventilated place.

**Technical Rules for Hazardous Substances (TRGS) 510**  
**Storage Class (LGK) (Germany)**

Storage Class/LGK 8B

**Switzerland - Storage of hazardous substances**

Storage class - SC 8  
<https://www.kvu.ch/de/themen/stoffe-und-produkte>  
<https://www.kvu.ch/fr/themes/substances-et-produits>  
<https://www.kvu.ch/it/temi/sostanze-e-prodotti>

### 7.3. Specific end use(s)

Use in laboratories

ALFAA35417A

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## Section 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure limits

List source(s): **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund). **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC

Component	European Union	The United Kingdom	France	Belgium	Spain
Nitric acid	STEL: 1 ppm (15min) STEL: 2.6 mg/m <sup>3</sup> (15min)	STEL: 1 ppm 15 min STEL: 2.6 mg/m <sup>3</sup> 15 min	STEL / VLCT: 1 ppm. indicative limit STEL / VLCT: 2.6 mg/m <sup>3</sup> . indicative limit	STEL: 1 ppm 15 minuten STEL: 2.6 mg/m <sup>3</sup> 15 minuten	STEL / VLA-EC: 1 ppm (15 minutos). STEL / VLA-EC: 2.6 mg/m <sup>3</sup> (15 minutos).

Component	Italy	Germany	Portugal	The Netherlands	Finland
Nitric acid	STEL: 1 ppm 15 minuti. Short-term STEL: 2.6 mg/m <sup>3</sup> 15 minuti. Short-term	TWA: 1 ppm (8 Stunden). AGW - TWA: 2.6 mg/m <sup>3</sup> (8 Stunden). AGW -	STEL: 1 ppm 15 minutos STEL: 2.6 mg/m <sup>3</sup> 15 minutos TWA: 2 ppm 8 horas	STEL: 0.5 ppm 15 minuten STEL: 1.3 mg/m <sup>3</sup> 15 minuten	TWA: 0.5 ppm 8 tunteina TWA: 1.3 mg/m <sup>3</sup> 8 tunteina STEL: 1 ppm 15 minuutteina STEL: 2.6 mg/m <sup>3</sup> 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Nitric acid	MAK-KZGW: 1 ppm 15 Minuten MAK-KZGW: 2.6 mg/m <sup>3</sup> 15 Minuten	STEL: 1 ppm 15 minutter STEL: 2.6 mg/m <sup>3</sup> 15 minutter	STEL: 2 ppm 15 Minuten STEL: 5 mg/m <sup>3</sup> 15 Minuten TWA: 2 ppm 8 Stunden TWA: 5 mg/m <sup>3</sup> 8 Stunden	STEL: 2.6 mg/m <sup>3</sup> 15 minutach TWA: 1.4 mg/m <sup>3</sup> 8 godzinach	TWA: 2 ppm 8 timer TWA: 5 mg/m <sup>3</sup> 8 timer STEL: 4 ppm 15 minutter. value calculated STEL: 10 mg/m <sup>3</sup> 15 minutter. value calculated

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Nitric acid	STEL : 1 ppm STEL : 2.6 mg/m <sup>3</sup>	STEL-KGVI: 1 ppm 15 minutama. STEL-KGVI: 2.6 mg/m <sup>3</sup> 15 minutama.	STEL: 1 ppm 15 min STEL: 2.6 mg/m <sup>3</sup> 15 min	STEL: 1 ppm STEL: 2.6 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> 8 hodinách. Ceiling: 2.5 mg/m <sup>3</sup>

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Nitric acid	STEL: 1 ppm 15 minutites. STEL: 2.6 mg/m <sup>3</sup> 15 minutites.	STEL: 1 ppm 15 min STEL: 2.6 mg/m <sup>3</sup> 15 min	STEL: 1 ppm STEL: 2.6 mg/m <sup>3</sup>	STEL: 2.6 mg/m <sup>3</sup> 15 percekben. CK STEL: 1 ppm 15 percekben. CK	STEL: 1 ppm STEL: 2.6 mg/m <sup>3</sup>

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Nitric acid	STEL: 1 ppm STEL: 2.6 mg/m <sup>3</sup> TWA: 0.78 ppm TWA: 2 mg/m <sup>3</sup>	STEL: 1 ppm STEL: 2.6 mg/m <sup>3</sup>	STEL: 1 ppm 15 Minuten STEL: 2.6 mg/m <sup>3</sup> 15 Minuten	STEL: 1 ppm 15 minuti STEL: 2.6 mg/m <sup>3</sup> 15 minuti	STEL: 1 ppm 15 minute STEL: 2.6 mg/m <sup>3</sup> 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Nitric acid	Skin notation MAC: 2 mg/m <sup>3</sup>	Ceiling: 2.6 mg/m <sup>3</sup>	TWA: 1 ppm 8 urah TWA: 2.6 mg/m <sup>3</sup> 8 urah STEL: 1 ppm 15 minutah STEL: 2.6 mg/m <sup>3</sup> 15 minutah	Binding STEL: 1 ppm 15 minuter Binding STEL: 2.6 mg/m <sup>3</sup> 15 minuter TLV: 0.5 ppm 8 timmar. NGV TLV: 1.3 mg/m <sup>3</sup> 8 timmar. NGV	STEL: 1 ppm 15 dakika STEL: 2.6 mg/m <sup>3</sup> 15 dakika

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

## Predicted No Effect Concentration (PNEC)

No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Wear safety glasses with side shields (or goggles) (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Disposable gloves	See manufacturers recommendations	-	EN 374	(minimum requirement)

#### Skin and body protection

Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

#### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

#### Large scale/emergency use

In case of insufficient ventilation, wear suitable respiratory equipment

#### Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
When RPE is used a face piece Fit Test should be conducted

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

Environmental exposure controls No information available.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance		
Odor	No information available	
Odor Threshold	No data available	
Melting Point/Range	No data available	
Softening Point	No data available	
Boiling Point/Range	approx 100 °C / 212 °F	
Flammability (liquid)	No data available	
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Flash Point	Not applicable °C / °F	Method - No information available
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
pH	No information available	
Viscosity	No data available	
Water Solubility	Miscible	
Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Component	log Pow	
Nitric acid	-2.3	
Vapor Pressure	No data available	
Density / Specific Gravity	No data available	
Bulk Density	No data available	
Vapor Density	No data available	(Air = 1.0)
Particle characteristics	Not applicable (liquid)	

### 9.2. Other information

Explosive Properties Not explosive

## Section 10: Stability and reactivity

10.1. Reactivity  
None known, based on information available

10.2. Chemical stability  
Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Hazardous Polymerization No information available.  
Hazardous Reactions No information available.

10.4. Conditions to avoid  
Incompatible products. Excess heat.

10.5. Incompatible materials  
Bases. Protect from light.



# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## 10.6. Hazardous decomposition products

Nitrogen oxides (NO<sub>x</sub>).

## Section 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

**Product Information** No acute toxicity information is available for this product

**(a) acute toxicity;**

<b>Oral</b>	No data available
<b>Dermal</b>	No data available
<b>Inhalation</b>	No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid	-	-	LC50 = 2500 ppm. (Rat) 1h

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid	-	-	ATE = 2.65 mg/L (vapours)

**(b) skin corrosion/irritation;** No data available

**(c) serious eye damage/irritation;** No data available

**(d) respiratory or skin sensitization;**

<b>Respiratory</b>	No data available
<b>Skin</b>	No data available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** No information available.

**(j) aspiration hazard;** No data available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

### 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## Section 12: Ecological information

### 12.1. Toxicity

#### **Ecotoxicity effects**

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

**12.2. Persistence and degradability** No information available

**12.3. Bioaccumulative potential** No information available

Component	log Pow	Bioconcentration factor (BCF)
Nitric acid	-2.3	No data available

**12.4. Mobility in soil** No information available

**12.5. Results of PBT and vPvB assessment** No data available for assessment.

### **12.6. Endocrine disrupting properties**

#### **Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

### **12.7. Other adverse effects**

#### **Persistent Organic Pollutant Ozone Depletion Potential**

This product does not contain any known or suspected substance  
This product does not contain any known or suspected substance

## Section 13: Disposal considerations

### **13.1. Waste treatment methods**

#### **Waste from Residues/Unused Products**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

#### **Contaminated Packaging**

Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.

#### **European Waste Catalogue (EWC)**

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

#### **Other Information**

Waste codes should be assigned by the user based on the application for which the product was used.

#### **Switzerland - Waste Ordinance**

Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600  
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

## Section 14: Transport information

### **IMDG/IMO**

ALFAA35417A

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

**14.1. UN number** UN2031  
**14.2. UN proper shipping name** NITRIC ACID  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** II

## ADR

**14.1. UN number** UN2031  
**14.2. UN proper shipping name** NITRIC ACID  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** II

## IATA

**14.1. UN number** UN2031  
**14.2. UN proper shipping name** NITRIC ACID  
**14.3. Transport hazard class(es)** 8  
**14.4. Packing group** II

**14.5. Environmental hazards** No hazards identified  
**14.6. Special precautions for user** No special precautions required.  
**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## Section 15: Regulatory information

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

#### International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Nitric acid	7697-37-2	231-714-2	-	-	X	X	KE-25911	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Nitric acid	7697-37-2	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

### Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Nitric acid	7697-37-2	-	Use restricted. See entry 75. (see link for restriction details)	-

#### REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

## Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Nitric acid	7697-37-2	Not applicable	Not applicable

**Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals**

Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

## National Regulations

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## WGK Classification

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Nitric acid	WGK1	

## Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Nitric acid 7697-37-2 ( 5.0 )	Prohibited and Restricted Substances		

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## Section 16: Other information

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

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

### Legend

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution A

Revision Date 12-Dec-2024

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

**Key literature references and sources for data**

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (volatile organic compound)

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

**Prepared By**

Health, Safety and Environmental Department

**Creation Date**

26-Jul-2018

**Revision Date**

12-Dec-2024

**Revision Summary**

New emergency telephone response service provider.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 .**

**For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**

Creation Date 31-Jul-2018

Revision Date 12-Dec-2024

Revision Number 2

**Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1. Product identifier**

Product Description: **Instrument Calibration (ICAL) Solution B**  
Cat No. : **35417B**

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

Recommended Use Laboratory chemicals.  
Uses advised against No Information available

**1.3. Details of the supplier of the safety data sheet****Company**

Thermo Fisher (Kandel) GmbH  
Erlenbachweg 2, 76870 Kandel, Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300

**Swiss distributor** - Fisher Scientific AG  
Neuhofstrasse 11, CH 4153 Reinach  
Tel: +41 (0) 56 618 41 11  
<https://www.fishersci.ch/ch/en/customer-help-support/forms/email-us.html>

**E-mail address**

[begel.sdsdesk@thermofisher.com](mailto:begel.sdsdesk@thermofisher.com)

**1.4. Emergency telephone number**

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

customers in Switzerland:  
Tox Info Suisse Emergency Number: **145 (24hr)**  
Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)  
Chemtrec (24h) Toll-Free: 0800 564 402  
Chemtrec Local: +41-43 508 20 11 (Zurich)

**Section 2: HAZARDS IDENTIFICATION****2.1. Classification of the substance or mixture**

**CLP Classification - Regulation (EC) No 1272/2008**

**Physical hazards**

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

Substances/mixtures corrosive to metal

Category 1 (H290)

## **Health hazards**

Skin Corrosion/Irritation

Category 2 (H315)

Serious Eye Damage/Eye Irritation

Category 2 (H319)

Specific target organ toxicity - (single exposure)

Category 3 (H335)

## **Environmental hazards**

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## **2.2. Label elements**



Signal Word

Warning

## **Hazard Statements**

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

## **Precautionary Statements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P312 - Call a POISON CENTER or doctor if you feel unwell

## **2.3. Other hazards**

This product does not contain any known or suspected endocrine disruptors

Toxic to terrestrial vertebrates

## **Section 3: Composition/information on ingredients**

### **3.2. Mixtures**

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Hydrochloric acid	7647-01-0	231-595-7	20.0	Met. Corr. 1 (H290) Skin Corr. 1B (H314) Eye Dam. 1 (H318) STOT SE 3 (H335)

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Hydrochloric acid	Skin Corr. 1B :: C>=25% Skin Irrit. 2 :: 10%<=C<25% Eye Irrit. 2 :: 10%<=C<25% STOT SE 3 :: C>=10% Met. Corr. 1 :: C>=0.1%	-	-

## Note

Elements and concentrations in ug/ml are as follows:

Al 1000, As 1000, Ca 10000, Cr 1000, K 10000, Na 10000, Mg 10000, Sb 1000, Se 1000, V 1000 (balance is water)

Full text of Hazard Statements: see section 16

## Section 4: First aid measures

### 4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. .

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

Notes to Physician	Treat symptomatically.
--------------------	------------------------

## Section 5: Firefighting measures

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

### 5.2. Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:.. Hydrogen Chloride.



# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

## Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>).

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## Section 6: ACCIDENTAL RELEASE MEASURES

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

Ensure adequate ventilation. Use personal protective equipment as required.

### 6.2. Environmental precautions

Should not be released into the environment.

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

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

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

Keep container tightly closed in a dry and well-ventilated place.

**Technical Rules for Hazardous Substances (TRGS) 510**  
**Storage Class (LGK) (Germany)**

Storage Class/LGK 12

**Switzerland - Storage of hazardous substances**

Storage class - SC 10/12  
<https://www.kvu.ch/de/themen/stoffe-und-produkte>  
<https://www.kvu.ch/fr/themes/substances-et-produits>  
<https://www.kvu.ch/it/temi/sostanze-e-prodotti>

### 7.3. Specific end use(s)

Use in laboratories

## Section 8: Exposure controls/personal protection

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

## 8.1. Control parameters

### Exposure limits

List source(s): **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund). **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Hydrochloric acid	TWA: 5 ppm 8 hr TWA: 8 mg/m <sup>3</sup> 8 hr STEL: 10 ppm 15 min STEL: 15 mg/m <sup>3</sup> 15 min	STEL: 5 ppm 15 min STEL: 8 mg/m <sup>3</sup> 15 min TWA: 1 ppm 8 hr TWA: 2 mg/m <sup>3</sup> 8 hr	STEL / VLCT: 5 ppm. restrictive limit STEL / VLCT: 7.6 mg/m <sup>3</sup> . restrictive limit	TWA: 5 ppm 8 uren TWA: 8 mg/m <sup>3</sup> 8 uren STEL: 10 ppm 15 minuten STEL: 15 mg/m <sup>3</sup> 15 minuten	STEL / VLA-EC: 10 ppm (15 minutos). STEL / VLA-EC: 15 mg/m <sup>3</sup> (15 minutos). TWA / VLA-ED: 5 ppm (8 horas) TWA / VLA-ED: 7.6 mg/m <sup>3</sup> (8 horas)

Component	Italy	Germany	Portugal	The Netherlands	Finland
Hydrochloric acid	TWA: 5 ppm 8 ore. Time Weighted Average TWA: 8 mg/m <sup>3</sup> 8 ore. Time Weighted Average STEL: 10 ppm 15 minuti. Short-term STEL: 15 mg/m <sup>3</sup> 15 minuti. Short-term	TWA: 2 ppm (8 Stunden). AGW - exposure factor 2 TWA: 3 mg/m <sup>3</sup> (8 Stunden). AGW - exposure factor 2 TWA: 2 ppm (8 Stunden). MAK TWA: 3.0 mg/m <sup>3</sup> (8 Stunden). MAK Höhepunkt: 4 ppm Höhepunkt: 6 mg/m <sup>3</sup>	STEL: 10 ppm 15 minutos STEL: 15 mg/m <sup>3</sup> 15 minutos Ceiling: 2 ppm TWA: 5 ppm 8 horas TWA: 8 mg/m <sup>3</sup> 8 horas	STEL: 10 ppm 15 minuten STEL: 15 mg/m <sup>3</sup> 15 minuten TWA: 5 ppm 8 uren TWA: 8 mg/m <sup>3</sup> 8 uren	STEL: 5 ppm 15 minuutteina STEL: 7.6 mg/m <sup>3</sup> 15 minuutteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Hydrochloric acid	MAK-KZGW: 10 ppm 15 Minuten MAK-KZGW: 15 mg/m <sup>3</sup> 15 Minuten MAK-TMW: 5 ppm 8 Stunden MAK-TMW: 8 mg/m <sup>3</sup> 8 Stunden	STEL: 5 ppm 15 minutter STEL: 8 mg/m <sup>3</sup> 15 minutter	STEL: 4 ppm 15 Minuten STEL: 6 mg/m <sup>3</sup> 15 Minuten TWA: 2 ppm 8 Stunden TWA: 3 mg/m <sup>3</sup> 8 Stunden	STEL: 10 mg/m <sup>3</sup> 15 minutach TWA: 5 mg/m <sup>3</sup> 8 godzinach	Ceiling: 5 ppm Ceiling: 7 mg/m <sup>3</sup>

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Hydrochloric acid	TWA: 5 ppm TWA: 8.0 mg/m <sup>3</sup> STEL : 10 ppm STEL : 15.0 mg/m <sup>3</sup>	TWA-GVI: 5 ppm 8 satima. TWA-GVI: 8 mg/m <sup>3</sup> 8 satima. STEL-KGVI: 10 ppm 15 minutama. STEL-KGVI: 15 mg/m <sup>3</sup> 15 minutama.	TWA: 8 mg/m <sup>3</sup> 8 hr. F TWA: 5 ppm 8 hr. STEL: 10 ppm 15 min STEL: 15 mg/m <sup>3</sup> 15 min	STEL: 10 ppm STEL: 15 mg/m <sup>3</sup> TWA: 5 ppm TWA: 8 mg/m <sup>3</sup>	TWA: 8 mg/m <sup>3</sup> 8 hodinách. Ceiling: 15 mg/m <sup>3</sup>

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Hydrochloric acid	TWA: 5 ppm 8 tundides. TWA: 8 mg/m <sup>3</sup> 8 tundides. STEL: 10 ppm 15 minutites. STEL: 15 mg/m <sup>3</sup> 15 minutites.	TWA: 5 ppm 8 hr TWA: 8 mg/m <sup>3</sup> 8 hr STEL: 10 ppm 15 min STEL: 15 mg/m <sup>3</sup> 15 min	STEL: 5 ppm STEL: 7 mg/m <sup>3</sup> TWA: 5 ppm TWA: 7 mg/m <sup>3</sup>	STEL: 165 mg/m <sup>3</sup> 15 percekben. CK STEL: 10 ppm 15 percekben. CK TWA: 8 mg/m <sup>3</sup> 8 óraban. AK TWA: 5 ppm 8 óraban. AK	STEL: 5 ppm STEL: 8 mg/m <sup>3</sup>

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
-----------	--------	-----------	------------	-------	---------

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

Hydrochloric acid	STEL: 10 ppm STEL: 15 mg/m <sup>3</sup> TWA: 5 ppm TWA: 8 mg/m <sup>3</sup>	TWA: 5 ppm IPRD TWA: 8 mg/m <sup>3</sup> IPRD STEL: 10 ppm STEL: 15 mg/m <sup>3</sup>	TWA: 5 ppm 8 Stunden TWA: 8 mg/m <sup>3</sup> 8 Stunden STEL: 10 ppm 15 Minuten STEL: 15 mg/m <sup>3</sup> 15 Minuten	TWA: 5 ppm TWA: 8 mg/m <sup>3</sup> STEL: 10 ppm 15 minuti STEL: 15 mg/m <sup>3</sup> 15 minuti	TWA: 5 ppm 8 ore TWA: 8 mg/m <sup>3</sup> 8 ore STEL: 10 ppm 15 minute STEL: 15 mg/m <sup>3</sup> 15 minute
-------------------	--	--	--	--	--

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Hydrochloric acid	MAC: 5 mg/m <sup>3</sup>	Ceiling: 15 mg/m <sup>3</sup> TWA: 5 ppm TWA: 8.0 mg/m <sup>3</sup>	TWA: 5 ppm 8 urah anhydrous TWA: 8 mg/m <sup>3</sup> 8 urah anhydrous STEL: 10 ppm 15 minutah anhydrous STEL: 15 mg/m <sup>3</sup> 15 minutah anhydrous	Binding STEL: 4 ppm 15 minuter Binding STEL: 6 mg/m <sup>3</sup> 15 minuter TLV: 2 ppm 8 timmar. NGV TLV: 3 mg/m <sup>3</sup> 8 timmar. NGV	TWA: 5 ppm 8 saat TWA: 8 mg/m <sup>3</sup> 8 saat STEL: 10 ppm 15 dakika STEL: 15 mg/m <sup>3</sup> 15 dakika

## Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Hydrochloric acid 7647-01-0 ( 20.0 )	DNEL = 15mg/m <sup>3</sup>		DNEL = 8mg/m <sup>3</sup>	

## Predicted No Effect Concentration (PNEC)

No information available.

## 8.2. Exposure controls

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments (minimum requirement)
Butyl rubber	See manufacturers	-		

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

recommendations	EN 374
-----------------	--------

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow conforming to EN14387

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141  
When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical State</b>	Liquid	
<b>Appearance</b>	Colorless	
<b>Odor</b>	No information available	
<b>Odor Threshold</b>	No data available	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	approx 100 °C / 212 °F	
<b>Flammability (liquid)</b>	No data available	
<b>Flammability (solid,gas)</b>	Not applicable	Liquid
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	Not applicable	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>pH</b>	< 1	
<b>Viscosity</b>	No data available	
<b>Water Solubility</b>	Miscible	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Vapor Pressure</b>	No data available	
<b>Density / Specific Gravity</b>	No data available	
<b>Bulk Density</b>	Not applicable	Liquid
<b>Vapor Density</b>	No data available	(Air = 1.0)
<b>Particle characteristics</b>	Not applicable (liquid)	

### 9.2. Other information

**Explosive Properties** Not explosive

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

## Section 10: Stability and reactivity

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

#### Hazardous Polymerization

No information available.

#### Hazardous Reactions

None under normal processing.

### 10.4. Conditions to avoid

Incompatible products. Excess heat.

### 10.5. Incompatible materials

Bases.

### 10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

## Section 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Product Information

#### (a) acute toxicity;

Oral

Based on available data, the classification criteria are not met

Dermal

Based on available data, the classification criteria are not met

Inhalation

Based on available data, the classification criteria are not met

#### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrochloric acid	238 - 277 mg/kg ( Rat )	> 5010 mg/kg ( Rabbit )	1.68 mg/L ( Rat ) 1 h

#### (b) skin corrosion/irritation;

Category 2

#### (c) serious eye damage/irritation;

Category 2

#### (d) respiratory or skin sensitization;

Respiratory

No data available

Skin

No data available

#### (e) germ cell mutagenicity;

No data available

#### (f) carcinogenicity;

No data available

There are no known carcinogenic chemicals in this product

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

(g) reproductive toxicity; No data available

(h) STOT-single exposure; Category 3

Results / Target organs Respiratory system.

(i) STOT-repeated exposure; No data available

Target Organs None known.

(j) aspiration hazard; No data available

Symptoms / effects,both acute and delayed No information available.

## 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## Section 12: Ecological information

### 12.1. Toxicity Ecotoxicity effects

Component	Freshwater Fish	Water Flea	Freshwater Algae
Hydrochloric acid	282 mg/L LC50 96 h Gambusia affinis mg/L LC50 48 h Leucscus idus	56mg/L EC50 72h Daphnia	-

Component	Microtox	M-Factor
Hydrochloric acid	-	

### 12.2. Persistence and degradability

#### Persistence

Miscible with water, Persistence is unlikely, based on information available.

### 12.3. Bioaccumulative potential

Bioaccumulation is unlikely

### 12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

### 12.5. Results of PBT and vPvB assessment

No data available for assessment.

### 12.6. Endocrine disrupting properties

#### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### 12.7. Other adverse effects

#### Persistent Organic Pollutant

This product does not contain any known or suspected substance

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

**Ozone Depletion Potential** This product does not contain any known or suspected substance

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**European Waste Catalogue (EWC)** According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

**Switzerland - Waste Ordinance** Disposal should be in accordance with applicable regional, national and local laws and regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) SR 814.600  
<https://www.fedlex.admin.ch/eli/cc/2015/891/en>

## Section 14: Transport information

### IMDG/IMO

14.1. UN number UN1789  
14.2. UN proper shipping name HYDROCHLORIC ACID  
14.3. Transport hazard class(es) 8  
14.4. Packing group III

### ADR

14.1. UN number UN1789  
14.2. UN proper shipping name HYDROCHLORIC ACID  
14.3. Transport hazard class(es) 8  
14.4. Packing group III

### IATA

14.1. UN number UN1789  
14.2. UN proper shipping name HYDROCHLORIC ACID  
14.3. Transport hazard class(es) 8  
14.4. Packing group III

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

## Section 15: Regulatory information

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

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

## International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Hydrochloric acid	7647-01-0	231-595-7	-	-	X	X	KE-20189	X	X

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Hydrochloric acid	7647-01-0	X	ACTIVE	X	-	X	X	X

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

## Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Hydrochloric acid	7647-01-0	-	Use restricted. See entry 75. (see link for restriction details)	-

## REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

## Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Hydrochloric acid	7647-01-0	25 tonne	250 tonne

## Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

## Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

## National Regulations

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

## WGK Classification

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Hydrochloric acid	WGK1	



# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

## Swiss Regulations

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Hydrochloric acid 7647-01-0 ( 20.0 )	Prohibited and Restricted Substances		

## 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

## Section 16: Other information

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

H290 - May be corrosive to metals

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H335 - May cause respiratory irritation

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road

**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

### Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**ATE** - Acute Toxicity Estimate

**VOC** - (volatile organic compound)

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

**Physical hazards** On basis of test data

**Health Hazards** Calculation method

**Environmental hazards** Calculation method

### Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and

# SAFETY DATA SHEET

Instrument Calibration (ICAL) Solution B

Revision Date 12-Dec-2024

hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

<b>Prepared By</b>	Health, Safety and Environmental Department
<b>Creation Date</b>	31-Jul-2018
<b>Revision Date</b>	12-Dec-2024
<b>Revision Summary</b>	New emergency telephone response service provider.

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.  
COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No  
1907/2006 .**

**For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2,  
Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and  
Preparations).**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**