

Safety Data Sheet

(In accordance with China GB/T 16483 and GB/T 17519)

Revision number 1
Revision date 23-Aug-2022

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

Identification of the substance or mixture

Product code A5145402
Product name CTS VIRAL-PLEX COMPLEXATION BUFFER

Company/undertaking identification

Life Technologies Corporation
5781 Van Allen Way
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+1 760 603 7200

Invitrogen Trading (Shanghai) Co., Ltd
379 Debao Road
Waigaoqiao Free Trade Zone, Bldg 59W
Shanghai, China
Tel: 800 820 8982

7th Floor, building C
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North Ring Road No.36, Dong Cheng District
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Tel: +86-010-87946900
Hotline: 800 820 8982

Unit 204-206, No.26-38
Huanyu No.3 Road North Tower
Guangzhou international Bio Island
Guangzhou 510320
Guangdong China
Tel: +86-020-82401698-22698
Hotline: 800 820 8982

Emergency telephone number for China 400-821-5118

24 hour Emergency Response for Hazardous Materials Within the USA + Canada: 1-800-424-9300 and
[or Dangerous Goods] Incident. Spill, Leak, Fire, 1-703-527-3887
Exposure, or Accident. Call CHEMTREC Outside the USA + Canada: 1-703-741-5970

Country Specific Emergency Number (if available):

For Research Use or Manufacturing of Cell, Gene, or Tissue-Based Products. CAUTION: Not intended for direct administration into human or animals.

SECTION 2: Hazards identification

Emergency Overview

Physical state	liquid
Overview	Not Applicable

GHS Classification

Not Hazardous

Label elements

Signal Word

Not Applicable

Hazard pictograms

Not Applicable

Hazard Statements

Not Applicable

Precautionary Statements

Prevention

Not Applicable

Response

Not Applicable

Storage

Not Applicable

Disposal

Not Applicable

Physical and chemical hazards

Not Applicable

Health hazards

Not Applicable

Environmental hazards

Not Applicable

Other hazards

Not Applicable

SECTION 3: Composition/information on ingredients

Chemical Name	CAS No	EC No.	Weight-%
Nickel(II) sulfate hexahydrate (1:1:6)	10101-97-0	-	<0.0001
Nickel(II) chloride hexahydrate (1:2:6)	7791-20-0	-	<0.0001
Cadmium Chloride 2.5H ₂ O	35658-65-2	-	<0.0001

We recommend handling all chemicals with caution.

SECTION 4: First aid measures

Description of first aid measures

Skin contact	Rinse skin with water. Immediate medical attention is not required.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Ingestion	Not expected to present a significant ingestion hazard under anticipated conditions of normal use. If you feel unwell, seek medical advice.
Inhalation	Not expected to be an inhalation hazard under anticipated conditions of normal use of this material. Consult a physician if necessary.
Notes to Physician	Treat symptomatically.

Most important symptoms and effects, both acute and delayed

Not Applicable

Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	Water spray. Carbon dioxide (CO ₂). Foam. Dry chemical.
Unsuitable extinguishing media	No information available.

Special hazards arising from the substance or mixture Not known.

Advice for firefighters Standard procedure for chemical fires.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Always wear recommended Personal Protective Equipment. Use personal protection equipment. See section 8 for more information.

Environmental precautions

No special environmental precautions required. .

Methods and material for containment and cleaning up

Soak up with inert absorbent material.

Reference to other sections

See section 8 for more information.

SECTION 7: Handling and storage

Precautions for safe handling

Use personal protective equipment as required. No special handling advices are necessary.

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers.

Specific end use(s)

For Research Use or Manufacturing of Cell, Gene, or Tissue-Based Products. CAUTION: Not intended for direct administration into human or animals.

SECTION 8: Exposure controls/personal protection

Control parameters

Chemical Name	China OEL (MAC)	China - Skin Absorbers
Nickel(II) sulfate hexahydrate (1:1:6) 10101-97-0	TWA: 0.5 mg/m ³	None
Nickel(II) chloride hexahydrate (1:2:6) 7791-20-0	TWA: 0.5 mg/m ³	None
Cadmium Chloride 2.5H ₂ O 35658-65-2	STEL: 0.02 mg/m ³ TWA: 0.01 mg/m ³	None

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Exposure controls

Personal Protective Equipment

Respiratory protection

In case of insufficient ventilation wear respirators and components tested and approved under appropriate government standards.

Hand protection

Wear suitable gloves
Glove material: Compatible chemical-resistant gloves.

Eye protection

Tight sealing safety goggles

Skin and Body Protection

Wear suitable protective clothing

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls

No special environmental precautions required

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state	liquid	
Odour	No data	
Odour Threshold	No data	
pH	6-8	
Melting point / melting range	°C No data	°F No data
Boiling point / boiling range	°C No data	°F No data
Flash point	°C No data	°F No data
Autoignition Temperature	°C No data	°F No data
Decomposition temperature	°C No data	°F No data
Evaporation rate	No data	
Flammability (solid, gas)	No data	
Upper explosion limit	No data	
Lower explosion limit	No data	
Vapour Pressure	No data	
Relative density	No data	
Specific gravity	No data	
Solubility	No data	
Partition coefficient: n-octanol/water	No data	
Viscosity	No data	
Explosive properties	No data	
Oxidising properties	No data	
Other information	No data	

SECTION 10: Stability and reactivity

Reactivity	None known.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Hazardous reaction has not been reported.
Conditions to avoid	None under normal processing.
Incompatible materials	No dangerous reaction known under conditions of normal use.
Hazardous decomposition products	No data available.

SECTION 11: Toxicological information

Information on toxicological effects

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Nickel(II) sulfate hexahydrate (1:1:6)	= 264 mg/kg (Rat)	No data available	No data available
Nickel(II) chloride hexahydrate (1:2:6)	= 105 mg/kg (Rat)	No data available	No data available
Cadmium Chloride 2.5H ₂ O	No data available	No data available	No data available

Principal Routes of Exposure

Skin corrosion/irritation Data are conclusive but insufficient for classification

Serious eye damage/irritation Data are conclusive but insufficient for classification

Respiratory or skin sensitisation Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – single exposure Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – repeated exposure Data are conclusive but insufficient for classification

Carcinogenicity Data are conclusive but insufficient for classification

Germ cell mutagenicity Data are conclusive but insufficient for classification

Reproductive Toxicity Data are conclusive but insufficient for classification

Aspiration hazard Data are conclusive but insufficient for classification

SECTION 12: Ecological information

Toxicity

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

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	log Pow
Nickel(II) sulfate hexahydrate (1:1:6)	No data available	No data available	No data available	No data available	No data available
Nickel(II) chloride hexahydrate (1:2:6)	No data available	No data available	No data available	No data available	No data available
Cadmium Chloride 2.5H ₂ O	No data available	No data available	No data available	No data available	No data available

Persistence and degradability No information available.

Bioaccumulative potential No information available.

Results of PBT and vPvB assessment

No information available.

Other adverse effects No information available.

SECTION 13: Disposal considerations

Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in accordance with approved disposal technique. Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations.

SECTION 14: Transport information

IATA / ADR / DOT-US / IMDG

Not classified as dangerous in the meaning of transport regulations.

UN number or ID number Not Applicable

UN proper shipping name Not Applicable

Transport hazard class(es) Not Applicable

Packing group Not Applicable

Environmental hazards Not Applicable

Special precautions for user Not Applicable

Maritime transport in bulk according to IMO instruments

Not Applicable.

SECTION 15: Regulatory information

International Inventories

Chemical Name	US TSCA	Canada (DSL)	NDSL	PICCS (Philippines)
Nickel(II) sulfate hexahydrate (1:1:6)	-	-	-	Listed
Nickel(II) chloride hexahydrate (1:2:6)	-	-	-	Listed
Cadmium Chloride 2.5H ₂ O	-	-	-	Listed

Chemical Name	ENCS (Japan)	IECSC - China Inventory of Existing Chemical Substances	South Korea (KECL)	AICS (Australia)
Nickel(II) sulfate hexahydrate (1:1:6)	Listed	Listed	Listed	-
Nickel(II) chloride hexahydrate (1:2:6)	Listed	Listed	Listed	Listed
Cadmium Chloride 2.5H ₂ O	-	Listed	Listed	-

Chemical Name	NZIoC - New Zealand Inventory of Chemicals	EINECS (European Union)	ELINCS (European List of Notified Chemical Substances)
Nickel(II) sulfate hexahydrate (1:1:6)	Listed	-	-
Nickel(II) chloride hexahydrate (1:2:6)	Listed	-	-
Cadmium Chloride 2.5H ₂ O	Listed	-	-

UN (United Nations) - Chemical Weapons Convention (CWC)

Not Applicable

Korea

Occupational Safety and Health Act

Chemical Name	ISHA - Substances to be controlled - Metals	ISHA - Substances to be controlled - Organic Substances	ISHA - Substances to be controlled - Acids and bases	ISHA - Substances to be controlled - Gas-phase substances
Nickel(II) sulfate hexahydrate (1:1:6)	>=1 % mixture ([003])	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	>=1 % mixture ([003])	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	>=0.1 % mixture (specially controlled substance, [021])	Not Applicable	Not Applicable	Not Applicable

Chemical Name	ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying	ISHA - Harmful Substances Requiring Permission	Special management materials
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Not Applicable	When the ratio is 0.1 %(weight) or more

Chemical Name	Harmful agents subject to work environment monitoring - Organic compounds	Harmful agents subject to work environment monitoring - Metals	Harmful agents subject to work environment monitoring - Acids and alkalis	Harmful agents subject to work environment monitoring - Gas-phase substances	Harmful agents subject to work environment monitoring - Dusts
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	>=1 % mixture (Measurement cycle: 6 months, [003])	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	>=1 % mixture (Measurement cycle: 6 months, [003])	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	>=1 % mixture (Measurement cycle: 6 months, [021])	Not Applicable	Not Applicable	Not Applicable

Chemical Name	Harmful agents subject to workers requiring health examination - Organic compounds	Harmful agents subject to workers requiring health examination - Metals	Harmful agents subject to workers requiring health examination - Acids and alkalis	Harmful agents subject to workers requiring health examination - Gas-phase substances	Harmful agents subject to workers requiring health examination - Dusts
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	>=1 % mixture (Diagnostic cycle: 12 months, [003])	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	>=1 % mixture (Diagnostic cycle: 12 months, [003])	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	>=1 % mixture (Diagnostic cycle: 12 months, [017])	Not Applicable	Not Applicable	Not Applicable

Chemical Name	Korea OEL (CEILING)	Korea OEL (TWA)	Korea OEL (STEL)	Korea OEL (Skin Notations)
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Applicable	Not Applicable	Not Applicable

Chemical Name	Korea OEL (Carcinogens)	Korea OEL (Germ Cell Mutagenicity)	Korea OEL (Reproductive Toxicity)	Korea PEL (STELs)	Korea PEL (TWAs)
Nickel(II) sulfate hexahydrate	Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

(1:1:6)					
Nickel(II) chloride hexahydrate (1:2:6)	Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Applicable	Applicable	Applicable	Not Applicable	Applicable

Chemical Name	ISHA - Harmful or Dangerous Substances Subject to Submission of Process Safety Reports - Storage	ISHA - Harmful or Dangerous Substances Subject to Submission of Process Safety Reports - Manufacturing or Handling
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Not Applicable

Chemicals Control Act

Chemical Name	Toxic substance	Prohibited substance	Restricted substance
Nickel(II) sulfate hexahydrate (1:1:6)	2010-1-0609 0.1% mixture cut-off	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	2019-1-0945 0.1% mixture cut-off	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	1997-1-0250 25% mixture cut-off excluding cadmium chloride, cadmium carbonate, cadmium fluoroborate, cadmium nitrate, cadmium oxide, cadmium sulfate, cadmium sulfide and fatty acids, (C8-18) and (C-18)-unsaturated, cadmium salts	Not Applicable	Not Applicable

Chemical Name	Threshold Values (%)	Quantity limit for manufacture/use	Quantity limit for custody/storage
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Not Applicable	Not Applicable

Chemical Name	Pollutant Release and Transfer Registers (PRTR) - Group I	Pollutant Release and Transfer Registers (PRTR) - Group II
Nickel(II) sulfate hexahydrate (1:1:6)	>=0.1 % w/w cut-off value [16] (listed under Nickel and its compounds)	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	>=0.1 % w/w cut-off value [16] (listed under Nickel and its compounds)	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Not Applicable

Act on Registration, Evaluation, etc. of Chemicals (K-REACH)

Chemical Name	Ministry of Environment - CMR risk	Ministry of Environment - Critically Controlled Substance	Existing substances subject to registration	Substances Exempted from Registration or Notification - Annex 1	Substances Exempted from Registration or Notification - Annex 2
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Safety Control of Dangerous Substances Act

Chemical Name	Safety Control of Dangerous Substances Act
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable
Cadmium Chloride 2.5H ₂ O	Not Applicable

Wastes Control Act

Product code A5145402
Product name CTS VIRAL-PLEX COMPLEXATION BUFFER

Chemical Name	Wastes Control Act
Nickel(II) sulfate hexahydrate (1:1:6)	Not Applicable
Nickel(II) chloride hexahydrate (1:2:6)	Not Applicable
Cadmium Chloride 2.5H ₂ O	0.3 mg/L 1. Hazardous substances contained in sludge, waste adsorbents and absorbents (as Cd, dissolution test results according to waste process test standards); 0.3 mg/L 2. Hazardous substances contained in slag, dust, waste casting sand, waste sand, waste refractory, broken porcelain piece, cinder, stabilized or solidified waste, waste catalysts and mercury-containing waste treatment residues (as Cd, dissolution test results according to waste process test standards)

Singapore

Chemical Name	Singapore - Poisons List
Nickel(II) sulfate hexahydrate (1:1:6)	Not Listed
Nickel(II) chloride hexahydrate (1:2:6)	Not Listed
Cadmium Chloride 2.5H ₂ O	Not Listed

China

Chemical Name	China - Catalogue of Occupational Hazard Factors	China - Dangerous Goods List	China - Catalog of Hypertoxic Chemicals	China - List of Dangerous Chemicals for Priority Management
Nickel(II) sulfate hexahydrate (1:1:6)	Present (Nickel carbonyl is listed separately)	Not Listed	Not Listed	Not Listed
Nickel(II) chloride hexahydrate (1:2:6)	Present (Nickel carbonyl is listed separately)	Not Listed	Not Listed	Not Listed
Cadmium Chloride 2.5H ₂ O	Present	Present	Not Listed	Not Listed

Reason for revision	SDS sections updated.
Revision number	1
Revision date	23-Aug-2022

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References

- ECHA: <http://echa.europa.eu/>
- TOXNET: <http://toxnet.nlm.nih.gov/>
- eChemPortal: <http://www.echemportal.org/>
- LOLI database: <https://www.chemadvisor.com/loli-database>

Abbreviations and acronyms

TWA - Time-Weighted Average
OELs - Occupational Exposure Limits
STEL - Short Term Exposure Limit
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
KECL - Korean Existing and Evaluated Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
CEPA - Canadian Environmental Protection Act
EPA - Environmental Protection Agency
OSHA - Occupational Safety and Health Administration of the US Department of Labour
IATA - International Air Transport Association
DOT - Department of Transportation
IMDG - International Maritime Dangerous Goods
ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH - National Institute for Occupational Safety and Health
AIHA - American Industrial Hygiene Association
HMIS - Department of Defense Hazardous Materials Information System
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer

"The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS SDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE"

End of Safety Data Sheet