Store at –20°C

CellSimple™ Cell Health Assay Kit

#83323

1 Kit (100 assays)

Support: +1-978-867-2388 (U.S.)
www.cellsignal.com/support

Orders: 877-616-2355 (U.S.)
orders@cellsignal.com

Rev. 12/07/16

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Storage Temp.
Calcein-AM	13844	40 µg	–20°C
Propidium Iodide (PI) Solution	11733	200 µl	4°C
Phosphate Buffered Saline (PBS-20X)	9808	25 ml	RT

Description: The CellSimple™ Cell Health Assay Kit is a fluorescent assay designed for use with the CellSimple™ Cell Analyzer. The Cell Health Assay can determine cell viability by measuring intracellular esterase activity and plasma membrane integrity. The assay kit contains the fluorescent dyes Calcein-AM and Propidium Iodide (PI) and is therefore able to stain both live and dead cells simultaneously.

Background: Measures of cell viability and cytotoxicity are broadly used to study the effects of growth factors and cytokines, inhibitors and activators, and immune response signals. Calcein-AM is the acetomethoxyl form of calcein, a highly lipophilic, cell membrane permeable dye. Intracellular esterase activity converts the non-fluorescent Calcein-AM to the highly fluorescent Calcein, which is retained only within live cells (1,2). The DNA-binding agent PI is cell membrane impermeable and only enters dead cells or those with damaged cell membranes. Intracellular PI binds DNA and undergoes an approximate 40-fold enhancement in fluorescence intensity. As a result, live cells will produce a strong green fluorescence resulting from the conversion of Calcein-AM to Calcein, while dead cells produce a strong red fluorescence due to the presence of PI (3,4). These fluorescent signals can be detected using the Cell Health application on the CellSimple™ Cell Analyzer.

CellSimple™ Cell Analysis System: The CellSimple™ Cell Analyzer is a benchtop instrument that utilizes a disposable thin-film cassette and a combination of a 488 nm laser, two photomultiplier tubes (525/45 nm and 561 nm LP filters), Coulter Principle-based cell measurements, and on-board software to provide easy-to-run applications and data analysis. Data acquisition occurs within approximately 10 seconds per test. The instrument relies on disposable cassettes for sample handling, which alleviates the need for flow cell cleaning and fluidics maintenance and the instrument is small enough to be portable between the lab bench and the hood. Applications include quantitative assessments of cell viability, apoptosis, other labeled antibody markers and single and multiplexed bead-based assays for protein and cellular analysis.

Storage: All components in this kit are stable for at least 12 months when stored at the recommended temperature and left unused. Upon receipt, #11733 and #9808 should be removed from kit box and stored at 4°C and room temperature, respectively.

Background References:

(1) Papadopoulos, N.G. et al. (1994) *J Immunol Methods* 177, 101-11.

(2) Decherchi, P. et al. (1997) *J Neurosci Methods* 71, 205-13.

(3) Cárdenas, W. et al. (2004) *Fish Shellfish Immunol* 17, 223-33.

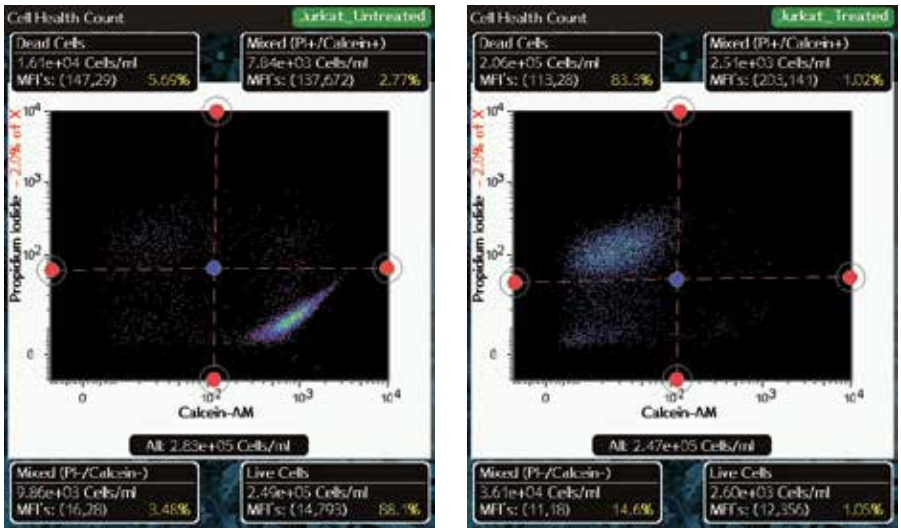
(4) Hiraoka, Y. and Kimbara, K. (2002) *Appl Environ Microbiol* 68, 2031-5.

Thank you for your recent purchase. If you would like to provide a review visit cellsignal.com/comments.

www.cellsignal.com

Applications: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity:** **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

Untreated **Staurosporine-treated**



CellSimple™ cell-based analysis of Jurkat cells, untreated (left panel) or treated with Staurosporine #9953 (10 µM, 18 hr; right panel) using the CellSimple™ Cell Health Assay Kit. Data was collected in both red (561 nm LP; y-axis) and green (525/45 nm; x-axis) channels and analyzed on the Cell Health application. Note the shift from high mean fluorescence intensity (MFI) in the green channel (untreated live cells) to high MFI in the red channel (staurosporine-treated, dead cells). Instrument screen shots are shown.

Untreated **Staurosporine-treated**

Graphical representation of the live and dead cell populations in untreated (left panel) or Staurosporine treated (10 µM, 18 hr; right panel) Jurkat cells. Analysis was performed using the Cell Health application and is based on the measurements obtained from the four quadrants of the dot blot figure shown on the previous page. Instrument screen shots are shown.

Please note your screen may look slightly different from the screen shots on the data sheet due to variations between software versions.

#83323 CellSimple™ Cell Health Assay Kit Protocol

A. Instrumentation: The CellSimple™ Cell Analyzer Kit was specially designed for use with the CellSimple™ Cell Analyzer. However, either kit may be used with a flow cytometer or plate reader capable of providing excitation between 480 nm and 490 nm and detecting fluorescent emission between 520 nm and 590 nm.

B. Kit components:
- Calcein-AM
- Propidium Iodide (PI Solution)
- Phosphate Buffered Saline (PBS-20X)

C. Additional reagents needed, but not supplied.
- DMSO
- Reverse osmosis/deionized (RO/DI) water or equivalent

D. Reagent preparation

Note: Allow all reagents to reach room temperature before use.

1. **1X PBS:** To prepare 1 L 1X PBS add 25 ml PBS-20X to 475 ml RO/DI water, mix. **Note:** For flow cytometry application, adding 0.5% BSA to 1X PBS buffer may help to prevent cell loss.
2. **2 mM Calcein-AM Solution:** Add 20 µl DMSO to each vial of Calcein-AM to make a 2 mM stock solution. Each vial contains enough 2 mM Calcein-AM stock solution for 100 CellSimple assays, 200 flow cytometry assays or 2 x 96-well plates.
3. **150 µM Propidium Iodide**

Notes:
- Calcein-AM solution should be used within 2 months after reconstitution and should be stored desiccated at -20°C protected from light.
- For optimal labeling in different cell lines, a titration of both Calcein–AM and PI at a final concentration between 0.1 to 10 µM is recommended for both live and dead cells. Treatment of cells with 0.05% Triton™ X-100 or 0.05% digitonin can be used to generate dead cells with damaged plasma membranes for testing purposes.
- Calcein-AM stock solution in DMSO is stable for up to 12 months at -20ºC if protected from light and moisture. We recommend aliquoting the stock solution. Close cap tighly after each use. Any aqueous dilution of the Calcein-AM stock should be used within the same day.

4. **A. Labeling Solution** for CellSimple Cell Analyzer assay: Dilute 1 µl of 2 mM stock Calcein- AM with 199 µl DMSO to make a 10 µM Calcein-AM working solution. For CellSimple assays add 2.5 µl of 10 µM Calcein-AM working solution and 1.67 µl of 150 µM Propidium Iodide to each 0.5 ml cell suspension to reach a final concentration of 0.05 µM Calcein-AM and 0.5 µM Propidium Iodide.
   B. Labeling Solution for flow cytometry assay: Dilute 2 µl of 2 mM stock Calcein- AM with 98 µl DMSO to make a 40 µM Calcein-AM working solution. For flow cytometry assays add 1.25 µl of 40 µM Calcein-AM working solution and 20 µl of 150 µM Propidium Iodide to each 1.0 ml cell suspension to reach a final concentration of 0.05 µM Calcein-AM and 3 µM Propidium Iodide.
   C. Labeling Solution for 96-well plate assay: Prepare a 2 µM Calcein-AM, 3 µM Propidium Iodide in 1X PBS labeling solution by adding 10 µl of 2 mM Calcein-AM and 200 µl of 150 µM Propidium Iodide to 10 ml 1X PBS. This will provide enough labeling solution for one 96-well plate assay at the recommended conditions. :

E. Cell Health Assay protocol using the CellSimple™ Cell Analyzer

1. Prepare reagents according to Section D.
2. Harvest cells by centrifugation.
3. Wash cells once with 1X PBS and resuspened cells in 0.25 mL of 1X PBS at a concentration of 1 x 10^5 to 5 x 10^5 cell/ml.
   Note: Adherent cells can be detached with EDTA. For toxicity assays, make sure to collect all dead cells floating in the medium.
4. Apply Calcein–AM to a final concentration of 0.01 – 0.05 µM and Propidium Iodide to a final concentration of 0.5 - 5.0 µM to the cell suspension.
5. Mix well and incubate cells at room temperature for 15 to 30 min. Protect from light.
6. Analyze samples with a CellSimple™ Cell Analyzer using the Cell Health Application.

F. Cell Health Assay protocol using flow cytometry

1. Prepare reagents according to Section D.
2. Harvest cells by centrifugation.
3. Wash cells once with 1X PBS and resuspend cells in 1 mL 1X PBS at a concentration of 1 x 10^5 to 5 x 10^6 cell/ml. **Note:** Adherent cells can be detached with EDTA. For toxicity assays, make sure to collect all dead cells floating in the medium.
4. Apply Calcein-AM to a final concentration of 0.1-10 µM and Propidium Iodide to a final concentration of 0.1-10 µM. See part 4 of section D.
5. Mix well and incubate cells at room temperature for 15 to 30 min. Protect from light.
6. Analyze samples with a flow cytometer set at excitation/emission of 488/535 nm to detect live cells, and an excitation/emission setting of 488/620 nm to detect dead cells.

G. Cell Health Assay protocol using a plate reader (96-well plate assay)

1. Prepare reagents according to Section D.
2. **For cells in suspension:**
   i. Harvest cells and wash once with 1X PBS. Make a 1 x 10^5 to 1 x 10^6 cells/ml cell suspension with 1X PBS. Proceed to Step 4.
3. **For adherent cells:** Seed cells into a 96 well plate in warm culture medium and culture cells in incubator overnight to allow cells to attach to plate. Typical cell number is between 1 x 10^4 to 5 x 10^4 cells/ well. **Note:** A cell number titration may be necessary for optimal results.
4. Remove the medium from the plate and wash cells once with 1X PBS. Add 100 µl/well of 1X PBS to plate followed by treatment with desired growth factors or cytotoxic reagents. **Note:** Because labeling solution will be added directly to this plate, use an FBS-free cell treatment to avoid Calcein-AM signal loss due to serum esterase.
5. Add 100 µl/well of Labeling Solution to cell plate and incubate cells at room temperature for 30 to 60 min while protected from light.
6. Analyze samples on a plate reader or fluorescent microscope set at excitation/emission of 490/520 nm for live cells, and an excitation/emission setting of 535/620 nm for dead cells.

Safety Data Sheet - Cover Page

The products listed below meet the criteria for classification as hazardous in accordance with The Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Please refer to the indicated Safety Data Sheet (SDS) for information concerning hazards and appropriate protective measures. SDS for products not classified as hazardous are available on request. Visit www.cellsignal.com for additional technical information and support.

Kit No.	Product name
83323	CellSimple (TM) Cell Health Assay Kit

Kit Component No.	Product name
13844	Calcein AM
9808	Phosphate Buffered Saline (PBS-20X)

SAFETY DATA SHEET (SDS): According to the OSHA Hazard Communication Standard 29 CFR 1910.1200
Issuing Date: 2014-06-25 **Revision Date:** 2014-06-25 **Version:** 1

SECTION 1. Identification

Product identifier

Product No. 13844
Product name Calcein AM

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Company phone number 978-867-2300
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity - single exposure (STOT SE)	Category 3

GHS Label elements, including precautionary statements

Signal Word
Warning

Hazard statement(s)

Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Precautionary Statement(s)
Avoid breathing dust
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Use only outdoors or in a well-ventilated area
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Dispose of contents/container to an approved waste disposal plant

Supplementary Hazard Information

Hazards not otherwise classified (HNOC) None

SECTION 3. Composition/information on ingredients

Formula $C_{46}H_{46}N_2O_{23}$
Molecular Weight 994.86 g/mol
Chemical nature Monoconstituent substance
Synonyms Calcein AM; CTK8C8008; Calcein acetoxymethyl ester; 4',5'-Bis(N,N-bis(carboxymethyl)aminomethyl)fluorescein acetoxymethyl ester

Chemical Name	CAS No.	Weight %
acetoxymethyl 2-[[2-(acetoxymethoxy)-2-oxo-ethyl]-[[3',6'-diacetoxy-7'-[[bis[2-(acetoxymethoxy)-2-oxo-ethyl]amino]methyl]-3-oxo-spiro[isobenzofuran-1,9'-xanthene]-2'-yl]methyl]amino]acetate	148504-34-1	100

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact Wash skin with soap and water.
Inhalation Move to fresh air.
Ingestion Clean mouth with water and afterwards drink plenty of water.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice For further assistance, contact your local Poison Control Center.
Protection of First-aiders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective Equipment and Precautions 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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Ensure adequate ventilation.
Other information No information available.

Environmental precautions

Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep container tightly closed in a dry and well-ventilated place. Protect from moisture.
Packaging material No information available.
Incompatible products None known based on information supplied.

SECTION 8. Exposure controls/personal protection

Control parameters

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

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection	Safety glasses with side-shields.
Skin and body protection	Wear protective gloves/clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odor	No information available
Color	White
Odor Threshold	No information available
pH	No information available
Melting point/freezing point	No information available
Initial boiling point and boiling range	No information available
Flash point	No information available.
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Upper flammability limit	No information available.
Lower flammability limit	No information available.
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available.
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available.
Explosive properties	No information available
Oxidizing properties	No information available
Molecular Weight	994.86 g/mol
VOC content	No information available
Viscosity	No information available.
Density	No information available.

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions	None under normal processing.

Hazardous polymerization	None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None under normal use. Thermal decomposition can lead to release of irritating gases and vapors: Nitrogen oxides (NOx), Carbon oxides (COx).

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation of respiratory tract.
Eye contact	Contact with eyes may cause irritation.
Skin contact	Contact with skin may cause irritation.
Ingestion	There is no data available for this product.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxocological and physiological properties of this compound is not well defined.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	No information available.
Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.
Corrosivity	No information available.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
STOT - single exposure	Respiratory system.
STOT - repeated exposure	No information available.
Neurological effects	No information available.
Aspiration Hazard	No information available.

SECTION 12. Ecological information

Ecotoxicity

Product does not present an aquatic toxicity hazard based on known or supplied information.

Persistence and degradability	Product is biodegradable.
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

Dispose of in accordance with all applicable national environmental laws and regulations.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTOIN 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

North American Inventory Listing

Chemical Name	TSCA 8(b)	TSCA 12(b)	DSL	NDSL
acetoxymethyl 2-[[2-(acetoxymethoxy)-2-oxo-ethyl]-[[3',6'-diacetoxy-7''-[[bis[2-(acetoxymethoxy)-2-oxo-ethyl]amino]methyl]-3-oxo-spiro[isobenzofuran-1,9'-xanthene]-2'-yl]methyl]amino]acetate	Not Listed	Not Listed	Not Listed	Not Listed

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

Class D2B: Skin/Eye Irritation - Reversible damage

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated under applicable state right-to-know regulations

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-06-25
Revision Date: 2014-06-25
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

Safety Data Sheet (SDS) According to the OSHA Hazard Communication Standard 29 CFR 1910.1200
Issuing Date: 2014-02-24 **Revision Date:** 2014-02-24 **Version:** 1

SECTION 1. Identification

Product identifier

Product number 9808
Product name Phosphate Buffered Saline (PBS-20X)
Other means of identification 9808BC, 9808P, 9808P2, 9808S

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

Manufacturer, importer, supplier

Manufacturer address Cell Signaling Technology, Inc.
3 Trask Lane
Danvers, MA 01923
United States
TEL: +1 978 867 2300
FAX: +1 978 867 2400
Website www.cellsignal.com
Email address support@cellsignal.com
Emergency telephone number In case of emergency call CHEMTREC 1-800-424-9300

SECTION 2. Hazard(s) identification

Classification

This substance/mixture is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage/eye irritation	Category 2B

GHS Label elements, including precautionary statements

Signal Word
Warning

Hazard statement(s)
Causes eye irritation.

Precautionary Statement(s)
Wash face, hands and any exposed skin thoroughly after handling.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Supplementary Hazard Information
No information available.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous buffer solution

Chemical Name	CAS No	Weight %
sodium chloride	7647-14-5	10-30

SECTION 4. First-aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin contact Wash skin with soap and water.
Inhalation Move to fresh air.
Ingestion If swallowed, do not induce vomiting - seek medical advice.

Most important symptoms and effects, both acute and delayed

No information available.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Advice for emergency responders

General advice For further assistance, contact your local Poison Control Center.
Protection of first-aiders Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

No information available.

Explosion Data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective Equipment and Precautions 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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Ensure adequate ventilation.
Other information No information available.

Environmental precautions

See Section 12 for additional information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Pick up and transfer to properly labeled containers.

SECTION 7. Handling and storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions Keep containers tightly closed in a dry, cool and well-ventilated place.
Packaging material No information available.
Incompatible products None known based on information supplied.

SECTION 8. Exposure controls/personal protection

Control parameters

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

Appropriate engineering controls

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection Safety glasses with side-shields.
Skin and body protection Wear protective gloves/clothing.
Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hygiene measures Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid
Appearance No information available
Color Colorless
Odor No information available
Odor Threshold No information available
pH 7.4
Melting point/freezing point No information available
Initial boiling point and boiling range No information available
Flash point No information available.
Evaporation rate No information available
Flammability (solid, gas) No information available
Upper flammability limit No information available.

Lower flammability limit No information available.
Vapor pressure No information available
Vapor density No information available
Relative density No information available
Solubility No information available.
Solubility in other solvents No information available
Partition coefficient: n-octanol/water No information available
Autoignition temperature No information available
Decomposition temperature No information available.
Explosive properties No information available
Oxidizing properties No information available
VOC content No information available
Viscosity No information available.
Density No information available.
Solubility in other solvents No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions None under normal processing.
Hazardous polymerization None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation There is no data available for this product.
Eye contact May cause temporary eye irritation.
Skin contact There is no data available for this product.
Ingestion There is no data available for this product.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxocological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
sodium chloride	3000 mg/kg (Rat)	10 g/kg (Rabbit)	42 g/m³ (Rat) 1 h

Lower flammability limit	No information available.
Vapor pressure	No information available
Vapor density	No information available
Relative density	No information available
Solubility	No information available.
Solubility in other solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available.
Explosive properties	No information available
Oxidizing properties	No information available
VOC content	No information available
Viscosity	No information available.
Density	No information available.
Solubility in other solvents	No information available

SECTION 10. Stability and reactivity

Reactivity

No information available.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Hazardous reactions	None under normal processing.
Hazardous polymerization	None under normal processing.

Conditions to Avoid

No information available.

Incompatible Materials

None known based on information supplied.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11. Toxicological information

Information on likely routes of exposure

Inhalation	There is no data available for this product.
Eye contact	May cause temporary eye irritation.
Skin contact	There is no data available for this product.
Ingestion	There is no data available for this product.

Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxocological and physiological properties of this compound is not well defined.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
sodium chloride	3000 mg/kg (Rat)	10 g/kg (Rabbit)	42 g/m^3 (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Symptoms	No information available.
Sensitization	No information available.
Mutagenic effects	No information available.
Carcinogenicity	No component of this product present at levels greater than or equal to 0.1% is identifiable as probable, possible or confirmed carcinogen by IARC, ACGIH, NTP, or OSHA.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Neurological effects	No information available.
Aspiration Hazard	No information available.

SECTION 12. Ecological information

Ecotoxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
sodium chloride	-	LC50 5560 - 6080 mg/L (Lepomis macrochirus) 96 h LC50 12946 mg/L (Lepomis macrochirus) 96 h LC50 4747 - 7824 mg/L (Oncorhynchus mykiss) 96 h LC50 7050 mg/L (Pimephales promelas) 96 h LC50 6420 - 6700 mg/L (Pimephales promelas) 96 h LC50 6020 - 7070 mg/L (Pimephales promelas) 96 h	EC50 340.7 - 469.2 mg/L (Daphnia magna) 48 h EC50 1000 mg/L (Daphnia magna) 48 h

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available

Other adverse effects

No information available.

SECTION 13. Disposal considerations

Waste Disposal Methods

Dispose of in accordance with all applicable national environmental laws and regulations.

Disposal considerations

Do not empty into drains; dispose of this material and its container in a safe way.

SECTION 14. Transport information

This material is not subject to regulation as a hazardous material for shipping.

SECTION 15. Regulatory information

North American Inventory Listing

Chemical Name	TSCA 8(b)	TSCA 12(b)	DSL	NDSL

sodium chloride	Listed	Not Listed	Listed	Not Listed

Canadian Workplace Hazardous Materials Information System (WHMIS) Classification

	Class D2B - Toxic Material at >= 1%

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

This product contains the following U.S. State Right to Know chemicals:

Chemical Name	New Jersey	Massachusetts	Pennsylvania
disodium hydrogenorthophosphate	Listed	Listed	Listed

U.S. FIFRA Label Information

This product does not contain any substances regulated as pesticides.

US Commerce Department - Export Administration Regulations Information

This product does not contain any substances regulated under the Chemical Weapons Convention (CWC).

U.S. Drug Enforcement Administration Information

This product does not contain any substances regulated under the DEA.

SECTION 16. Other information

Issuing Date: 2014-02-24
Revision Date: 2014-02-24
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