

Safety Data Sheet (SDS) According to the REACH Regulation (EC) No. 1907/2006

Issuing Date: 2017-08-20

Version: 1

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

1.1. Product identifier

Product No	59496
Product name	CellSimple™ Cellular Reactive Oxygen Species (ROS) Detection Assay Kit
Kit Component	DCFH-DA TBHP Loading Buffer Phosphate Buffered Saline (PBS-20X)
Reach registration number	This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.

Contains

Chemical Name	Index No.	CAS No
water (>100%)	Not Listed	7732-18-5
sodium chloride (10 - 20%)	Not Listed	7647-14-5
disodium hydrogenorthophosphate (0 - 10%)	Not Listed	7558-79-4
sodium chloride (0 - 10%)	Not Listed	7647-14-5
potassium chloride (0 - 10%)	Not Listed	7447-40-7
dihydrogen potassium phosphate (0 - 10%)	Not Listed	7778-77-0
calcium chloride (0 - 10%)	017-013-00-2	10043-52-4

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

Identified uses For research use only

1.3. Details of the supplier of the safety data sheet

Importer (Applicable in EU only)	Manufacturer
Cell Signaling Technology Europe B.V.	Cell Signaling Technology, Inc.
Schuttersveld 2	3 Trask Lane
2316 ZA Leiden	Danvers, MA 01923
The Netherlands	United States
TEL: +31 (0)71 7200 200	TEL: +1 978 867 2300
FAX: +31 (0)71 891 0098	FAX: +1 978 867 2400

Website	www.cellsignal.com
E-mail Address	info@cellsignal.eu

1.4. Emergency telephone number

CHEMTREC 24 hours a day, 7 days a week, 365 days a year
 +1 703 527 3887 (INTERNATIONAL) +1 800 424 9300 (NORTH AMERICA)

Europe 112

SECTION 2: Hazards identification

59496 CellSimple™ Cellular Reactive Oxygen Species (ROS) Detection Assay Kit

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Classification and label elements described below are inclusive of all hazards of the combined kit. The most severe classifications are listed for each endpoint. Refer to individual kit component SDS for classification and label elements for each component present in the kit.

Acute oral toxicity	Category 4 - (H302)
Acute dermal toxicity	Category 3 - (H311)
Acute inhalation toxicity	Category 3 - (H331)
Skin corrosion/irritation	Category 1 Sub-category B - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)
Skin sensitization	Category 1 - (H317)
Germ cell mutagenicity	Category 2 - (H341)
Specific target organ toxicity - single exposure (STOT SE)	Category 3 - (H335)
Chronic aquatic toxicity	Category 2 - (H411)
Flammable liquids	Category 3 - (H226)
Organic peroxides	Type F - (H242)

2.2. Label elements



Signal word

Danger

Hazard statement(s)

H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H341 - Suspected of causing genetic defects
H335 - May cause respiratory irritation
H411 - Toxic to aquatic life with long lasting effects
H226 - Flammable liquid and vapor
H242 - Heating may cause a fire

Precautionary statement(s)

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P220 - Keep/Store away from clothing/ combustible materials
P234 - Keep only in original container
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/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
P411 + P235 - Store at temperatures not exceeding 8 °C/ 46.4 °F. Keep cool

2.3. Other hazards

None under normal use conditions.

SECTION 3. Composition/information on ingredients

Kit Component Name DCFH-DA

Chemical Name	CAS No	Weight %	EC No	Classification (1272/2008)	REACH Registration Number
Benzoic acid, 2-(3,6-bis(acetyloxy)-2,7-dichloro-9H-xanthen-9-yl) -	4091-99-0	100	-	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)	no data available

Kit Component Name TBHP

Chemical Name	CAS No	Weight %	EC No	Classification (1272/2008)	REACH Registration Number
tert-Butyl hydroperoxide	75-91-2	60-10	200-915-7	Flam. Liq. 3 (H226) Org. Perox. F (H242) Acute Tox. 4 (H302) Acute Tox. 3 (H311) Skin Corr. 1B (H314) Skin Sens. 1 (H317) Acute Tox. 2 (H330) Muta. 2 (H241) Aquatic Chronic 2 (H411)	no data available

Kit Component Name Loading Buffer
Phosphate Buffered Saline (PBS-20X)

The product contains no substances which at their given concentration, are considered to be hazardous to health

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air. Immediate medical attention is required. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Skin contact	Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash contaminated clothing before reuse.
Eye contact	Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing.
Ingestion	Immediate medical attention is required. Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person.

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

Contains kit components which may cause the following effects, refer to individual component SDSs for full information on symptoms:

, Corrosive to the eyes and may cause irreversible eye damage. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

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 Water spray or fog. Carbon dioxide (CO₂). Alcohol-resistant foam. Dry chemical. Flood fire area with water from a distance.

Unsuitable Extinguishing Media No information available.

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Evacuate personnel to safe areas. Use personal protective equipment. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Take precautionary measures against static discharges. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water system. Should not be released into the environment. Prevent entry into waterways, sewers, basements or confined areas. Prevent spreading of vapors through sewers, ventilation systems and confined areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). A vapor suppressing foam may be used to reduce vapors.

6.3. 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 Dike to collect large liquid spills. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

6.4. Reference to other sections

See Sections 8 & 13 for additional information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Use only in an area containing flame proof equipment. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Avoid contact with skin and eyes. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. There is a hazard associated with rags, paper or any other material used to remove spills which become soaked with product. Avoid accumulation of these: they are to be disposed of safely after use. Avoid static electricity build up with connection to earth. When using, do not eat, drink or smoke. Keep away from food, drink and animal feeding stuffs. Provide regular cleaning of equipment, work area and clothing. Contaminated work clothing should not be allowed out of the workplace. For environmental protection, remove and wash all contaminated protective equipment before re-use. Remove and wash contaminated clothing before re-use.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

7.3. Specific end use(s)

Use as a laboratory reagent.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****8.2. Exposure controls****Appropriate engineering controls**

Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Tightly fitting safety goggles. Face-shield.

Skin protection**Hand protection**

Impervious gloves: Nitrile rubber.

Other

Impervious clothing. Antistatic boots. Wear fire/flammable resistant/retardant clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. The use of breathing apparatus must comply strictly with the manufacturer's instructions and the regulations governing their choices and uses.

Recommended filter:

Type ABEK

Environmental Exposure Controls

Local authorities should be advised if significant spillages cannot be contained. Do not allow material to contaminate ground water system. Prevent product from entering drains.

SECTION 9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Information on the known physical chemical properties of each component within Kit are given below. If not included, information is either not available or not applicable. Refer to individual kit component SDS for further information.

Kit Component	DCFH-DA
Physical state	Solid
Appearance	Lyophilized Crystalline Powder
Color	light red
Melting point/freezing point	232 °C

Kit Component	TBHP
Physical state	Liquid
Appearance	Clear
Color	light yellow
Odor	Pungent
pH VALUE	4.3
Remarks	@ 20 °C
Initial boiling point and boiling range	96.2 °C
Remarks	@ 1013 hPa
Melting point/freezing point	-3 °C
Remarks	@ 1013 hPa
Flash point	42

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Method	Closed cup
Vapor pressure	30.73 hPa @ 20 °C
Solubility	Soluble in water
Upper flammability limit	10.15%
Lower flammability limit	5.75%

Kit Component	Loading Buffer
Physical state	Liquid
Appearance	Clear

Kit Component	Phosphate Buffered Saline (PBS-20X)
Physical state	Liquid
Color	Colorless
pH VALUE	7.4

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts with incompatible materials causing a fire and explosion hazard.

10.2. Chemical stability

Heating may cause an explosion.

10.3. Possibility of hazardous reactions

Hazardous polymerization	Hazardous polymerization does not occur.
Hazardous reactions	Risk of explosion if heated under confinement.

10.4. Conditions to avoid

Heat, flames and sparks. Exposure to air or moisture over prolonged periods.

10.5. Incompatible materials

The product is a strong oxidant and reacts violently with: metallic or sulphur compounds, combustible, reducing and organic materials.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Product Information

Refer to kit component SDS for full toxicological information. 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 toxicological and physiological properties of this compound is not well defined.

Kit Component	TBHP
ATEmix (oral)	529 mg/kg
ATEmix (dermal)	657 mg/kg
ATEmix (inhalation-vapor)	2.64 mg/L

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Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
water	> 90000 mg/kg (Rat)	-	-
tert-Butyl hydroperoxide	= 370 mg/kg (Rat) = 560 mg/kg (Rat)	= 628 mg/kg (Rabbit) = 790 mg/kg (Rat)	= 1.85 mg/L (Rat) 4 h = 500 ppm (Rat) 4 h
sodium chloride	3000 mg/kg (Rat)	10 g/kg (Rabbit)	42 g/m ³ (Rat) 1 h
disodium hydrogenorthophosphate	17000 mg/kg (Rat)	-	-
sodium chloride	3000 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	> 42000 mg/m ³ (Rat) 1 h
potassium chloride	2600 mg/kg (Rat)	-	-

Information on likely routes of exposure

Inhalation

Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate

Kit Component
Inhalation

TBHP
Toxic by inhalation

Eye contact

Kit Component
Eye contact

DCFH-DA
Severely irritating to eyes

Kit Component
Eye contact

TBHP
Corrosive to the eyes and may cause severe damage including blindness

Skin contact

Kit Component
Skin contact

DCFH-DA
Expected to be an irritant based on components

Kit Component
Skin contact

TBHP
Corrosive to skin. Toxic in contact with skin

Ingestion

Kit Component
Ingestion

TBHP
Ingestion causes burns of the upper digestive and respiratory tract. Harmful if swallowed

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

Symptoms

Contains kit components which may cause the following effects, refer to individual component SDSs for full information on symptoms:
Corrosive to the eyes and may cause irreversible eye damage. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain, or flushing. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

Skin and Eye Corrosion/Irritation

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Kit Component **DCFH-DA**
Skin corrosion/irritation Irritating to skin
Serious eye damage/eye irritation Causes serious eye irritation

Kit Component **TBHP**
Skin corrosion/irritation Causes severe burns
Serious eye damage/eye irritation Risk of serious damage to eyes

Sensitization .

Kit Component **TBHP**
Skin Sensitization May cause skin sensitization

Mutagenic effects .

Kit Component **TBHP**
Mutagenic effects Mutagenic in vitro in the bacterial reverse mutation assays (AMES test).

Carcinogenic effects No information available.

Reproductive toxicity No information available.

Systemic Target Organ Toxicity (STOT)

Kit Component **DCFH-DA**
STOT - single exposure Respiratory system

Aspiration Hazard No information available.

SECTION 12: Ecological information

12.1. Toxicity

Product Information

Kit Component **TBHP**
Ecotoxicity Toxic to aquatic life with long lasting effects

Component Information

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
tert-Butyl hydroperoxide	EC50 2.1 mg/L (Pseudokirchneriella subcapitata) 72 h	LC50 57 mg/L (Brachydanio rerio) 96 h LC50 42.3 mg/L (Pimephales promelas) 96 h	EC50 20 mg/L (Daphnia magna) 48 h
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
sodium chloride	-	LC50 5560 - 6080 mg/L (Lepomis macrochirus) 96 h LC50 12946 mg/L (Lepomis macrochirus) 96 h LC50 4747 - 7824 mg/L	EC50 340.7 - 469.2 mg/L (Daphnia magna) 48 h EC50 1000 mg/L (Daphnia magna) 48 h

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		(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	
potassium chloride	EC50 2500 mg/L (Desmodesmus subspicatus) 72 h	LC50 1060 mg/L (Lepomis macrochirus) 96 h LC50 750 - 1020 mg/L (Pimephales promelas) 96 h	EC50 825 mg/L (Daphnia magna) 48 h EC50 83 mg/L (Daphnia magna) 48 h
sodium hydrogencarbonate	EC50 650 mg/L (Nitzschia linearis) 120 h	LC50 8250 - 9000 mg/L (Lepomis macrochirus) 96 h	EC50 2350 mg/L (Daphnia magna) 48 h
calcium chloride	-	LC50 10650 mg/L (Lepomis macrochirus) 96 h	LC50 2400 mg/L (Daphnia magna) 48 h
magnesium sulphate	EC50 2700 mg/L (Desmodesmus subspicatus) 72 h	LC50 2610 - 3080 mg/L (Pimephales promelas) 96 h LC50 19000 mg/L (Lepomis macrochirus) 24 h	EC50 266.4 - 417.3 mg/L (Daphnia magna) 48 h EC50 1700 mg/L (Daphnia magna) 24 h

12.2. Persistence and degradability

Kit Component	TBHP
Persistence and degradability	Not readily biodegradable

12.3. Bioaccumulative potential

Kit Component	TBHP
Bioaccumulation	Material may have some potential to bioaccumulate
Bioconcentration factor (BCF)	3

Chemical Name	Octanol-Water Partition Coefficient
tert-Butyl hydroperoxide	0.7

12.4. Mobility in soil

Kit Component	TBHP
Mobility	Is predicted to have low mobility in the environment

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products	Should not be released into the environment. Dispose of in accordance with the European Directives on waste and hazardous waste.
Contaminated packaging	Do not re-use empty containers. Empty containers may contain flammable or explosive vapours. Do not burn, or use a cutting torch on, the empty drum. Empty containers should be taken to an approved waste handling site for recycling or disposal.
Other information	According to the European Waste Catalogue, Waste Codes are not product specific, but

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

SECTION 14: Transport information

This material is subject to regulation as a hazardous material for shipping:

IMDG/IMO

14.1 UN number	UN3316
14.2 UN proper shipping name	Chemical Kits
14.3 Transport hazard class(es)	9
14.4 Packing group	II
14.5 Environmental hazards	None
14.6 Special precautions for user	
EmS No.	F-A, S-P
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not regulated

ADR/RID

14.1 UN number	UN3316
14.2 UN proper shipping name	Chemical Kits
14.3 Transport hazard class(es)	9
14.4 Packing group	II
14.5 Environmental hazards	None
14.6 Special precautions for user	
Classification Code	M11
Tunnel Restriction Code	E

IATA

14.1 UN number	UN3316
14.2 UN proper shipping name	Chemical Kits
14.3 Transport hazard class(es)	9
14.4 Packing group	II
14.5 Environmental hazards	None
14.6 Special precautions for user	
Special provisions	A163, A44

SECTION 15: Regulatory information

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

Candidate List of Substances of Very High Concern for Authorization Information

This product does not contain Substances of Very High Concern (SVHC).

SEVESO Directive Information

This product does not contain substances identified in the SEVESO Directive.

International inventories

TSCA 8(b)	Complies
DSL/NDSL	Complies
EINECS/ELINCS	-
ENCS	-
IECSC	Complies
KECL	-
PICCS	-
AICS	-

International inventories legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out

SECTION 16: Other information

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

H315 - Causes skin irritation
H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H226 - Flammable liquid and vapor
H242 - Heating may cause a fire
H302 - Harmful if swallowed
H311 - Toxic in contact with skin
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H330 - Fatal if inhaled
H241 - Heating may cause a fire or explosion
H411 - Toxic to aquatic life with long lasting effects

Classification procedure: Expert judgment and weight of evidence determination.

Issuing Date: 2017-08-20

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.