

Safety Data Sheet (SDS) According to the OSHA Hazard Communication Standard 29 CFR 1910.1200

Issuing Date: 2018-04-11

Version: 1

SECTION 1. Identification

Product identifier

Product No 8821
Product name Active Ras Detection Kit
Kit Component **GST-Raf1-RBD**
GDP
GTP gamma-S
Ras Mouse mAb
Glutathione Resin
SDS Sample Buffer
Lysis/Binding/Wash Buffer

Recommended use of the chemical and restrictions on use

Identified uses This product is intended for research purposes only.
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 not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements



Signal Word

Danger

Hazard statement(s)

Causes serious eye damage. Causes skin irritation.

Precautionary Statement(s)

Wear protective gloves/protective clothing/eye protection/face protection. Wash face, hands and any exposed skin thoroughly after handling.

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. Immediately call a POISON CENTER or doctor/physician.

Supplementary Hazard Information

No information available.

Hazards not otherwise classified (HNOC)

Not applicable.

Unknown Acute Toxicity 0% of the mixture consists of ingredient(s) of unknown acute toxicity

SECTION 3. Composition/information on ingredients

Kit Component Name GST-Raf1-RBD

Chemical Name	CAS No	Weight %
glycerol	56-81-5	10-20

Kit Component Name GDP

Chemical Name	CAS No	Weight %
guanosine 5'-(disodium hydrogen pyrophosphate)	7415-69-2	60-100

Kit Component Name GTP gamma-S

Chemical Name	CAS No	Weight %
Guanosine 5'-(trihydrogen diphosphate), monoanhydride with phosphorothioic acid, tetralithium salt	94825-44-2	100

Kit Component Name Glutathione Resin

Chemical Name	CAS No	Weight %
sodium azide	26628-22-8	<0.1
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1)	55965-84-9	<0.0015

Kit Component Name SDS Sample Buffer

Chemical Name	CAS No	Weight %
glycerol	56-81-5	10-30
sodium dodecyl sulphate	151-21-3	1-5
trometamol	77-86-1	1-5

Kit Component Name Lysis/Binding/Wash Buffer

Chemical Name	CAS No	Weight %
glycerol	56-81-5	1-5

Kit Component Name Ras Mouse mAb

This product does not contain substances at concentrations requiring disclosure under 29 CFR 1910.1200 (OSHA Hazard

Communication Standard).

SECTION 4. First-aid measures

Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Immediate medical attention is required.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
Ingestion	Do not induce vomiting without medical advice. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.

Most important symptoms and effects, both acute and delayed

Corrosive to the eyes and may cause severe damage including blindness. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Skin irritation. Respiratory irritation.

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.

Hazardous Combustion Products	Carbon oxides (COx). Nitrogen oxides (NOx). Sulfur oxides. Phosphorus oxides. Hazardous metal fumes and oxides.
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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	Use personal protective equipment. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Other information	No information available.

Environmental precautions

Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains.

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	Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

SECTION 7. Handling and storage**Precautions for safe handling**

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions	Keep container tightly closed in a dry and well-ventilated place. Protect from light.
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.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH REL
glycerol	-	TWA mist, total particulate: 15 mg/m ³ TWA mist, respirable fraction: 5 mg/m ³	-
sodium azide	Ceiling: 0.29 mg/m ³ Ceiling: 0.11 ppm	-	Ceiling: 0.1 ppm Ceiling: 0.3 mg/m ³

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. Do not eat, drink or smoke when using this product. Provide regular cleaning of equipment, work area and clothing.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Kit Component	GST-Raf1-RBD
Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	Odorless
pH VALUE	7.5

Kit Component	Ras Mouse mAb
Physical state	Liquid

Kit Component	GDP
Physical state	Solid
Color	White

Kit Component	GTP gamma-S
Physical state	Solid
Appearance	Powder
Color	White
Odor	Unpleasant

Kit Component	Glutathione Resin
Physical state	Liquid
Appearance	Suspension
Color	Off-white
Odor	Odorless

Kit Component	SDS Sample Buffer
Physical state	Liquid
Color	Blue
Odor	Odorless
pH VALUE	6.8

Kit Component	Lysis/Binding/Wash Buffer
Physical state	Liquid
Appearance	Clear
Color	Colorless
Odor	Odorless
pH VALUE	7.1 - 7.3

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

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

SECTION 11. Toxicological information**Information on likely routes of exposure****Product 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.

Inhalation

Kit Component	GTP gamma-S
Inhalation	May cause irritation of respiratory tract

Eye contact

Kit Component	Lysis/Binding/Wash Buffer
Eye contact	Expected to be an irritant based on components
Kit Component	SDS Sample Buffer
Eye contact	Corrosive to the eyes and may cause severe damage including blindness
Kit Component	GTP gamma-S
Eye contact	May cause irritation

Skin contact

Kit Component	SDS Sample Buffer
Skin contact	Expected to be an irritant based on components
Kit Component	GTP gamma-S
Skin contact	Irritating to skin

Ingestion

Kit Component	SDS Sample Buffer
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Information on toxicological effects**Component Information**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
glycerol	= 12600 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 570 mg/m ³ (Rat) 1 h
trometamol	5900 mg/kg (Rat)	-	-
sodium dodecyl sulphate	= 1288 mg/kg (Rat) = 1783 mg/kg (Rat)	= 200 mg/kg (Rabbit)	> 3900 mg/m ³ (Rat) 1 h

Nonylphenol, ethoxylated sodium azide	= 1310 mg/kg (Rat) = 27 mg/kg (Rat)	= 1780 mg/kg (Rabbit) = 20 mg/kg (Rabbit) = 50 mg/kg (Rat)	- -
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1)	= 53 mg/kg (Rat) = 481 mg/kg (Rat)	-	= 1.23 mg/L (Rat) 4 h

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

Symptoms Corrosive to the eyes and may cause severe damage including blindness, Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting, Skin irritation, Respiratory irritation.

Skin and Eye Corrosion/Irritation

Kit Component Lysis/Binding/Wash Buffer
Serious eye damage/eye irritation Irritating to eyes

Kit Component SDS Sample Buffer
Skin corrosion/irritation Irritating to skin
Serious eye damage/eye irritation Risk of serious damage to eyes

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.

Systemic Target Organ Toxicity (STOT)

Kit Component GTP gamma-S
STOT - single exposure May cause disorder and damage to the Respiratory system

Aspiration Hazard No information available.

SECTION 12. Ecological information

Ecotoxicity

Product Information

Component Information No information available

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
glycerol	-	LC50 51 - 57 mL/L (Oncorhynchus mykiss) 96 h	EC50 500 mg/L (Daphnia magna) 24 h
trometamol	-	-	NOEC >100 mg/L (Selenastrum capricornutum) 96 h
sodium dodecyl sulphate	EC50 53 mg/L (Desmodesmus subspicatus) 72 h EC50 30 - 100 mg/L (Desmodesmus subspicatus) 96 h EC50 42 mg/L (Desmodesmus subspicatus) 96 h EC50 3.59 - 15.6 mg/L (Pseudokirchneriella subcapitata) 96 h EC50 117 mg/L (Pseudokirchneriella subcapitata)	LC50 8 - 12.5 mg/L (Pimephales promelas) 96 h LC50 4.1 mg/L (Leuciscus idus) 48 h LC50 22.1 - 22.8 mg/L (Pimephales promelas) 96 h LC50 4.3 - 8.5 mg/L (Oncorhynchus mykiss) 96 h LC50 4.62 mg/L (Oncorhynchus mykiss) 96 h LC50 4.2 mg/L (Oncorhynchus)	EC50 21.2 mg/L (Daphnia magna) 24 h EC50 1.8 mg/L (Daphnia magna) 48 h

	96 h	mykiss) 96 h LC50 7.97 mg/L (Brachydanio rerio) 96 h LC50 9.9 - 20.1 mg/L (Brachydanio rerio) 96 h LC50 4.06 - 5.75 mg/L (Lepomis macrochirus) 96 h LC50 4.2 - 4.8 mg/L (Lepomis macrochirus) 96 h LC50 4.5 mg/L (Lepomis macrochirus) 96 h LC50 5.8 - 7.5 mg/L (Pimephales promelas) 96 h LC50 10.2 - 22.5 mg/L (Pimephales promelas) 96 h LC50 6.2 - 9.6 mg/L (Pimephales promelas) 96 h LC50 13.5 - 18.3 mg/L (Poecilia reticulata) 96 h LC50 10.8 - 16.6 mg/L (Poecilia reticulata) 96 h LC50 1.31 mg/L (Cyprinus carpio) 96 h LC50 15 - 18.9 mg/L (Pimephales promelas) 96 h	
Nonylphenol, ethoxylated	-	LC50 1.0 - 9.7 mg/L (Lepomis macrochirus) 96 h	-
sodium azide	EC50 0.35 mg/L (Pseudokirchneriella subcapitata) 96 h	LC50 0.8 mg/L (Oncorhynchus mykiss) 96 h LC50 5.46 mg/L (Pimephales promelas) 96 h LC50 0.7 mg/L (Lepomis macrochirus) 96 h	LC100 1 mg/L (Orconectes rusticus) 96 h
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1)	EC50 0.11 - 0.16 mg/L (Pseudokirchneriella subcapitata) 72 h EC50 0.31 mg/L (Anabaena flos-aquae) 120 h EC50 0.03 - 0.13 mg/L (Pseudokirchneriella subcapitata) 96 h	LC50 1.6 mg/L (Oncorhynchus mykiss) 96 h	EC50 4.71 mg/L (Daphnia magna) 48 h EC50 0.71 - 0.99 mg/L (Daphnia magna) 48 h EC50 0.12 - 0.3 mg/L (Daphnia magna) 48 h

Persistence and degradability No information available

Bioaccumulation

Kit Component Bioaccumulation	Glutathione Resin Most components of this material are unlikely to bioaccumulate but some have not been tested
Kit Component Bioaccumulation	Lysis/Binding/Wash Buffer Does not bioaccumulate
Kit Component Bioaccumulation	SDS Sample Buffer Not likely to bioaccumulate

Chemical Name	Octanol-Water Partition Coefficient
glycerol	-1.76
sodium dodecyl sulphate	1.6

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
Guanosine 5'-(trihydrogen diphosphate), monoanhydride with phosphorothioic acid, tetralithium salt	Not Listed	Not Listed	Not Listed	Not Listed
glycerol	Listed	Not Listed	Listed	Not Listed
trometamol	Listed	Not Listed	Listed	Not Listed
sodium dodecyl sulphate	Listed	Not Listed	Listed	Not Listed
glutathione	Listed	Not Listed	Listed	Not Listed
Nonylphenol, ethoxylated	Listed	Not Listed	Listed	Not Listed
sodium azide	Listed	Not Listed	Listed	Not Listed
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H -isothiazol-3-one [EC no. 220-239-6] (3:1)	Not Listed	Section 5: 1 %	Listed	Not Listed

SARA 313

Refer to kit component SDS for full SARA Section 313 reporting requirements.

Chemical Name	CAS No	SARA 313 - Threshold Values %
sodium azide	26628-22-8	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	No
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

Refer to kit component SDS for full Comprehensive Environmental Response Compensation and Liability Act (CERCLA) reporting requirements.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
sodium azide	1000 lb	1000 lb

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Refer to kit component SDS for applicable State Right-To-Know (RTK) information.

Chemical Name	New Jersey	Massachusetts	Pennsylvania
glycerol	Listed	Listed	Listed
sodium azide	Listed	Listed	Listed

SECTION 16. Other information

Issuing Date: 2018-04-11

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