



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

Issuing Date: 2018-04-13

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Version: 2

SECTION 1. Identification

Product identifier

Product No 8059
Product name SignalStain® DAB Substrate Kit
Kit Component 11724: SignalStain® DAB Diluent
11725: SignalStain® DAB Chromogen Concentrate
UN number UN1993

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

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.

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

Acute oral toxicity	Category 4
Acute inhalation toxicity	Category 4
Serious eye damage/eye irritation	Category 2
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1B
Reproductive toxicity	Category 1B
Flammable liquids	Category 2

GHS Label elements, including precautionary statements

**Signal Word**

Danger

Hazard statement(s)

Flammable liquid and vapor.

Harmful if inhaled.

Harmful if swallowed.

Causes serious eye irritation.

Suspected of causing genetic defects.

May cause cancer.

May damage fertility or the unborn child.

Precautionary Statement(s)

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Wash face, hands and any exposed skin thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

Keep container tightly closed.

Ground/Bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting/equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Call a POISON CENTER or doctor/physician if you feel unwell

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

In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish

Store in a well-ventilated place. Keep cool.

Store locked up.

Dispose of contents/container to an approved waste disposal plant.

Supplementary Hazard Information

May be harmful if swallowed.

Hazards not otherwise classified (HNOC)

Not applicable.

SECTION 3. Composition/information on ingredients

Kit Component

11724: SignalStain® DAB Diluent

DANGER: May damage fertility or the unborn child.

Chemical name	CAS No	Weight-%
1-Imidazole	288-32-4	0.1-0.5

Kit Component 11725: SignalStain® DAB Chromogen Concentrate

DANGER: Highly flammable liquid and vapor. Harmful if swallowed. Harmful if inhaled. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer.

Chemical name	CAS No	Weight-%
acetonitrile	75-05-8	50
3,3-Diaminobenzidine tetrahydrochloride hydrate	868272-85-9	2.5

SECTION 4. First-aid measures

Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately if irritation persists.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. If skin irritation occurs, get medical advice/attention.
Inhalation	Move to fresh air. Get medical attention immediately if symptoms occur.
Ingestion	Clean mouth with water and afterwards drink plenty of water. Get medical attention.

Most important symptoms and effects, both acute and delayed

Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

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 Water spray Alcohol-resistant foam Dry chemical Carbon dioxide (CO ₂)
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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. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Other information	No information available.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not allow material to contaminate ground water 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 (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly.

SECTION 7. Handling and storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions	Keep in a dry, cool and well-ventilated place.
Packaging material	No information available.
Incompatible products	Strong oxidizing agents, Strong acids

SECTION 8. Exposure controls/personal protection

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH REL
acetonitrile	S* TWA: 20 ppm	TWA : 40 ppm TWA : 70 mg/m ³ TWA : 5 mg/m ³ S*	IDLH : 137 ppm IDLH : 25 mg/m ³ TWA : 20 ppm TWA : 34 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
Skin and body protection
Respiratory protection
Hygiene measures

Tightly fitting safety goggles.
 Wear protective gloves/clothing.
 In case of inadequate ventilation wear respiratory protection.
 Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs.
 Remove and wash contaminated clothing and gloves, including the inside, before re-use.
 Provide regular cleaning of equipment, work area and clothing. Wash hands before breaks and immediately after handling the product.

SECTION 9. 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.

Information on basic physical and chemical properties

Kit Component	11725: SignalStain® DAB Chromogen Concentrate
Physical state	Liquid
Color	Brown / Purple
Boiling point or initial boiling point and boiling range	>82 °C
Flash point	<23°C
Kit Component	11724: SignalStain® DAB Diluent
Physical state	Liquid
Appearance	Clear
Color	Colorless

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

Extremes of temperature and direct sunlight, Keep away from open flames, hot surfaces and sources of ignition

Incompatible Materials

Strong oxidizing agents, Strong acids

Hazardous Decomposition Products

Carbon oxides (COx), Nitrogen oxides (NOx)

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 Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye contact Severely irritating to eyes

Skin contact Avoid contact with skin. May cause skin irritation and/or dermatitis.

Ingestion May be harmful if swallowed.

Information on toxicological effects

Component Information

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
acetonitrile	= 2460 mg/kg (Rat) = 160 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 26.8 mg/L (Rat) 4 h = 7551 ppm (Rat) 8 h
1-Imidazole	= 220 mg/kg (Rat)	-	-

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

Symptoms	Liquid, aerosols and vapors of this product are irritating and can cause pain, tearing, reddening and swelling accompanied by a stinging sensation and/or a feeling like that of fine dust in the eyes. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.
Skin and Eye Corrosion/Irritation	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.
Systemic Target Organ Toxicity (STOT)	No information available
Aspiration Hazard	No information available.

SECTION 12. Ecological information

Ecotoxicity

Component Information

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other
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			aquatic invertebrates
acetonitrile	-	LC50 1600 - 1690 mg/L (Pimephales promelas) 96 h LC50 1650 mg/L (Poecilia reticulata) 96 h LC50 1850 mg/L (Lepomis macrochirus) 96 h LC50 1000 mg/L (Pimephales promelas) 96 h	EC50 5838 mg/L (Daphnia pulex) 18 h
1-Imidazole	EC50 82 mg/L (Desmodesmus subspicatus) 96 h EC50 130 mg/L (Desmodesmus subspicatus) 72 h	LC50 280 mg/L (Leuciscus idus) 48 h	EC50 341.5 mg/L (Daphnia magna) 48 h

Persistence and degradability**Kit Component**

Persistence and degradability

11725: SignalStain® DAB Chromogen Concentrate

Readily biodegradable

Bioaccumulation

Chemical name	Octanol-Water Partition Coefficient
acetonitrile	-0.34
1-Imidazole	-0.08

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. Dispose of wastes in an approved waste disposal facility.

SECTION 14. Transport information

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

DOT

UN number	UN1993
UN proper shipping name	Flammable Liquid, N.O.S. (Contains: acetonitrile; cyanomethane)
Transport hazard class(es)	3
Packing group	II

IATA

UN number	UN1993
UN proper shipping name	Flammable Liquid, N.O.S. (Contains: acetonitrile; cyanomethane)
Transport hazard class(es)	3
Packing group	II

SECTION 15. Regulatory information**North American Inventory Listing**

Chemical name	TSCA 8(b)	TSCA 12(b)	DSL	NDSL
acetonitrile	Listed	Not Listed	Listed	Not Listed
1-Imidazole	Listed	Not Listed	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 %
acetonitrile	75-05-8	1.0

SARA 311/312 Hazard Categories

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

Clean Water Act

Refer to kit component SDS for full Clean Water Act (CWA) reporting requirements.

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances	CWA - Bioaccumulative Chemicals of Concern (BCCs)
acetonitrile	Not Listed	Listed	Listed	Not Listed	Not Listed

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
acetonitrile	5000 lb	Not Listed

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
acetonitrile	Listed	Listed	Listed

SECTION 16. Other information

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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