

SAFETY DATA SHEET

Product Identifier: Targeted DNA Seq Library Reagent Kit
 Catalog ID number: Cat# 101-0406, 101-2773

SDS ID: 101-1661

SECTION 1 - IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Contact information

General	Fluidigm Corporation 7000 Shoreline Court Suite 100, South San Francisco, CA 94080 Main (U.S.): +1 (650) 266-6000 E-mail: techsupport@fluidigm.com
Emergency telephone number	+ (650) 266-6100 (outside US) + (866) 358-4354 (toll free)

Product identifier	Targeted DNA Seq Library Reagent Kit
Synonyms	None identified
Trade names	None identified
Chemical family	Mixture
Relevant identified uses of the substance or mixture and uses advised against	<i>For Research Use Only. Not for use in diagnostic procedures.</i>

Note This SDS is written to address potential health and safety issues associated with the handling of this reagent kit. For occupational health and safety issues associated with manufacture of this kit, please consult the SDSs of the individual ingredients.

SECTION 2 - HAZARDS IDENTIFICATION

This product contains eight (8) parts. The following provides the hazard classification for each part.

Part 1: TSP Sample Loading Reagent (Part #: 101-0407)

Classification of the substance or mixture

Globally Harmonized System [GHS]	Corrosive (eye) – Category 1.
AU Hazard Classification (NOHSC)	Hazardous Substance. Hazardous goods.

Label elements

GHS hazard pictogram



GHS signal word Danger

GHS hazard statements H318 – Causes serious eye damage.

GHS precautionary statements P280 - Wear protective gloves/eye protection/face protection. 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.

Other hazards May cause eye corrosion/irritation. Part/mixture not yet fully tested.

Note This part of the product is classified as hazardous according to Regulation EC No 1272/2008 (EU CLP) and Hazard Communication Standard No. 1910.1200 (US OSHA). The pharmacological, toxicological and ecological properties of this part/mixture have not been fully characterized.

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Part 2: TSP Assay Loading Reagent (Part #: 101-0408)

Classification of the substance or mixture

Globally Harmonized System [GHS] Corrosive (eye) – Category 1.

AU Hazard Classification (NOHSC) Hazardous Substance. Hazardous goods.

Label elements

GHS hazard pictogram



GHS signal word Danger

GHS hazard statements H318 – Causes serious eye damage.

GHS precautionary statements P280 - Wear protective gloves/eye protection/face protection. 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.

Other hazards May cause skin/eye corrosion/irritation. Part/mixture not yet fully tested.

Note This part of the product is classified as hazardous according to Regulation EC No 1272/2008 (EU CLP) and Hazard Communication Standard No. 1910.1200 (US OSHA). The pharmacological, toxicological and ecological properties of this part/mixture have not been fully characterized.

Part 3: TSP Assay Loading Reagent (Part #: 101-0409)

Classification of the substance or mixture

Globally Harmonized System [GHS] Irritant (eye) – Category 2. Respiratory sensitizer – Category 1.

AU Hazard Classification (NOHSC) Hazardous Substance. Hazardous goods.

Label elements

GHS hazard pictogram



GHS signal word Danger

GHS hazard statements H319 – Causes serious eye irritation. H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.

GHS precautionary statements P261 - Avoid breathing mist or vapor. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves/eye protection/face protection. P285 – In case of inadequate ventilation wear respiratory protection. P304 + P341 – IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice/attention. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. P501 - Dispose of contents/container to location in accordance with local/regional/national/international regulations.

Other hazards May cause eye/skin corrosion/irritation and/or respiratory sensitization. Part/mixture not yet fully tested.

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Note This part of the product is classified as hazardous according to Regulation EC No 1272/2008 (EU CLP) and Hazard Communication Standard No. 1910.1200 (US OSHA). The pharmacological, toxicological and ecological properties of this part/mixture have not been fully characterized.

Part description and number

Part 4: TSP DNA Polymerase (Part #: 101-0995)
Part 5: DNA Dilution RGT (Part #: 100-9167)
Part 6: TSP Harvest Reagent (Part #: 101-0743)
Part 7: TSP MasterMix (Part #: 101-0994)
Part 8: PCR Water (Part #: 100-5941)

GHS and Australian Hazard Classification

None required.
 None required.
 None required.
 None required.
 None required.

Other hazards Parts of the kit may cause eye/skin irritation. Product/mixture not yet fully tested.

Note Parts 4-8 are not classified as hazardous according to Regulation EC No 1272/2008 (EU CLP) and Hazard Communication Standard No. 1910.1200 (US OSHA). The pharmacological, toxicological and ecological properties of this part/mixture have not been fully characterized.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Part 1: TSP Sample Loading Reagent (Part #: 101-0407)

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
2-Pyrrolidinone	616-45-5	N/A	30-50%	EC1:H318
Triton X-100	9002-93-1	N/A	5-15%	ATO4:H302; E11:H318; CA2:H411

Note 2-pyrrolidinone and Triton X-100 are considered hazardous. The remaining components are non-hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

Part 2: TSP Assay Loading Reagent (Part #: 101-0408)

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
2-Pyrrolidinone	616-45-5	N/A	5-15%	EC1:H318
DNA oligonucleotides	N/A	N/A	<1%	Not classified

Note 2-Pyrrolidinone is considered hazardous. DNA oligonucleotides may cause skin and/or eye irritation. The remaining components are non-hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

Part 3: TSP Assay Loading Reagent (Part #: 101-0995)

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
Triton X-100	9002-93-1	N/A	5-15%	ATO4:H302; E11:H318; CA2:H411

Note Triton X-100 is considered hazardous. The remaining components are non-hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

Parts 4-8

<u>Tube Description</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
TSP DNA Polymerase (Part #: 101-0995)	N/A (mixture)	N/A	~100%	Not classified
DNA Dilution RGT (Part #: 100-9167)	N/A (mixture)	N/A	~100%	Not classified
TSP Harvest Reagent (Part #: 101-0743)	N/A (mixture)	N/A	~100%	Not classified
TSP MasterMix (Part #: 101-0994)	N/A (Mixture)	N/A	~100%	Not classified
PCR Water (Part #: 100-5941)	N/A	N/A	~100%	Not classified

Note The components within Parts 4-8 are non-hazardous and/or present at amounts below reportable limits.

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SECTION 4 - FIRST AID MEASURES

Description of first aid measures

Immediate Medical Attention Needed	Yes
Eye Contact	If easy to do, remove contact lenses, if worn. Immediately flush eyes with copious quantities of water for at least 15 minutes. If irritation occurs or persists, notify medical personnel and supervisor.
Skin Contact	Wash exposed area with soap and water and remove contaminated clothing/shoes. If irritation occurs or persists, notify medical personnel and supervisor.
Inhalation	Immediately move exposed subject to fresh air. If not breathing, give artificial respiration. If breathing is labored, administer oxygen. Immediately notify medical personnel and supervisor.
Ingestion	Do not induce vomiting unless directed by medical personnel. Do not give anything to drink unless directed by medical personnel. Never give anything by mouth to an unconscious person. Notify medical personnel and supervisor.
Protection of first aid responders	See Section 8 for Exposure Controls/Personal Protection recommendations.
Most important symptoms and effects, both acute and delayed	See Sections 2 and 11.
Indication of immediate medical attention and special treatment needed, if necessary	Medical conditions aggravated by exposure: None known or reported. Treat symptomatically and supportively.

SECTION 5 - FIREFIGHTING MEASURES

Extinguishing media	Use water spray (fog), foam, dry powder, or carbon dioxide, as appropriate for surrounding fire and materials.
Specific hazards arising from the substance or mixture	No information identified. May emit carbon monoxide, carbon dioxide, nitrogen-, chloride-, and metal-containing compounds.
Flammability/Explosivity	Not expected to be flammable or explosive.
Advice for firefighters	Wear full protective clothing and a self-contained breathing apparatus with a full facepiece operated in the pressure demand or other positive pressure mode. Decontaminate all equipment after use.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	If product is released or spilled, take proper precautions to minimize exposure by using appropriate personal protective equipment (see Section 8). Area should be adequately ventilated. Do not breathe mist/vapors/spray.
Environmental precautions	Do not empty into drains. Avoid release to the environment.
Methods and material for containment and cleaning up	DO NOT CAUSE MATERIAL TO BECOME AIRBORNE. For small spills, soak up material with absorbent, e.g., paper towels. For large spills, cordon off spill area and minimize the spreading of spilled material. Soak up material with absorbent. Collect spilled material, absorbent, and rinse water into suitable containers for proper disposal in accordance with applicable waste disposal regulations (see Section 13). Decontaminate the area twice with an appropriate solvent (see Section 9).

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Reference to other sections See Sections 8 and 13 for more information.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling Avoid breathing mist/vapors/spray. Do not permit eating/drinking/smoking near this material.

Conditions for safe storage including any incompatibilities Store at -20 °C in a well-ventilated area; keep container upright and tightly closed.

Specific end use(s) No information identified.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Note Dispose of broken vials in a sharps container.

Control Parameters/Occupational Exposure Limit Values The following values are for those ingredients in the parts of the kit that are considered hazardous.

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
2-Pyrrolidinone	--	--	--
Triton X-100	--	--	--

Exposure/Engineering controls None required for normal handling of packaged product. Selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. Use local exhaust and/or enclosure at aerosol/mist-generating points. Emphasis is to be placed on closed material transfer systems and process containment, with limited open handling.

Respiratory protection None required for normal handling of packaged product. Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. If needed for routine liquid handling tasks, an approved and properly fitted air purifying respirator should provide ancillary protection based on the known or foreseeable limitations of existing engineering controls. Use a powered air-purifying respirator equipped with HEPA filters or combination filters or a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, when exposure levels are not known, or in any other circumstances where a lower level of respiratory protection may not provide adequate protection.

Hand protection Wear nitrile or other impervious gloves if skin contact is possible. When the material is diluted in an organic solvent, wear gloves that provide protection against the solvent.

Skin protection Wear appropriate gloves, lab coat, or other protective overgarment if skin contact is likely. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use.

Eye/face protection Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary, especially for those parts of the kit that are irritants or corrosive to the eye. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

Environmental Exposure Controls Avoid release to the environment and operate within closed systems wherever practicable. Air and liquid emissions should be directed to appropriate pollution control devices. In case of spill, do not release to drains. Implement appropriate and effective emergency response procedures to prevent release or spread of contamination and to prevent inadvertent contact by personnel.

Other protective measures Wash hands in the event of contact with this product/mixture, especially before eating, drinking or smoking. Protective equipment is not to be worn outside the work area (e.g., in common areas or out-of-doors).

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

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Information on basic physical and chemical properties

Appearance	Liquids (supplied as individually packaged reagents)
Color	Clear.
Odor	No information identified.
Odor threshold	No information identified.
pH	No information identified.
Melting point/freezing point	No information identified.
Initial boiling point and boiling range	No information identified.
Flash point	No information identified.
Evaporation rate	No information identified.
Flammability (solid, gas)	No information identified.
Upper/lower flammability or explosive limits	No information identified.
Vapor pressure	No information identified.
Vapor density	No information identified.
Relative density	No information identified.
Water solubility	No information identified.
Solvent solubility	No information identified.
Partition coefficient (n-octanol/water)	No information identified.
Auto-ignition temperature	No information identified.
Decomposition temperature	No information identified.
Viscosity	No information identified.
Explosive properties	No information identified.
Oxidizing properties	No information identified.

Other information

Molecular weight	Not applicable (Mixture)
Molecular formula	Not applicable (Mixture)

SECTION 10 - STABILITY AND REACTIVITY

Reactivity	No information identified.
Chemical stability	Stable when stored as recommended.
Possibility of hazardous reactions	No information identified.
Conditions to avoid	No information identified.
Incompatible materials	No information identified.

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Hazardous decomposition products No information identified.

SECTION 11 - TOXICOLOGICAL INFORMATION

Note No data were identified for the product/mixture. The following information is for the individual hazardous ingredients contained in some parts of the kit.

Information on toxicological effects

Route of entry May be absorbed by inhalation, skin contact and ingestion.

Acute toxicity

Compound	Type	Route	Species	Dose
2-Pyrrolidinone	LD ₅₀	Oral	Rat	> 5 g/kg
	LD ₅₀	IV	Rat	> 7.2 g/kg
	LD ₅₀	Dermal	Rabbit	> 2 g/kg
Triton X-100	LD ₅₀	Inhalation	Rat	> 80 ppm/8h
	LD ₅₀	Oral	Rat	707-1800 mg/kg
	LD ₅₀	Dermal	Rabbit	>5000 mg/kg

Irritation/Corrosion Ocular administration of 2-pyrrolidinone caused irreversible clouding of rabbit cornea. Triton X-100 may cause eye irritation.

STOT-single exposure No studies identified.

STOT-repeated exposure/Repeat-dose toxicity In a 90-day study, rats were administered 2-pyrrolidinone up to 15,000 ppm in drinking water. Increased kidney weights were observed at the highest dose. Reduced food consumption and body weights were seen at $\geq 7,200$ ppm. The NOAEL was 2,400 ppm. No studies were identified for Triton X-100.

Reproductive toxicity Based on repeat dose and developmental studies, no damage to rat reproductive organs was observed. No studies were identified for Triton X-100.

Developmental toxicity In developmental studies in rats, embryotoxicity was observed at maternally toxic oral doses of 600 mg/kg/day. Maternal toxicity was observed at ≥ 190 mg/kg/day. No studies were identified for Triton X-100.

Genotoxicity 2-Pyrrolidinone was not genotoxic in a battery of *in vitro* and *in vivo* assays. No studies were identified for Triton X-100.

Carcinogenicity No studies identified. No ingredients contained in this product/mixture are listed by NTP, IARC, ACGIH or OSHA as a carcinogen.

Aspiration hazard No studies identified.

Human health data See Section 2 - "Other hazards"

SECTION 12 - ECOLOGICAL INFORMATION

Toxicity

Compound	Type	Species	Concentration
2-Pyrrolidinone	EC ₅₀ /48h	Daphnia	13.2 mg/L
	LC ₅₀ /96h	Fathead minnow	>4.6 g/L
	LC ₅₀ /96h	Algae	84 mg/L
Triton X-100	EC ₅₀ /48h	Daphnia	26 mg/L
	LC ₅₀ /96h	Fathead minnow	8.9 mg/L

Persistence and Degradability Triton X-100 is not readily biodegradable. No data identified for the remaining components.

Bioaccumulative potential No data identified.

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Mobility in soil	No data identified.
Results of PBT and vPvB assessment	Not performed.
Other adverse effects	No data identified.
Note	The environmental characteristics of this product/mixture have not been fully investigated. The above data are for the active ingredient and/or any other ingredient(s) where applicable. Releases to the environment should be avoided.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods	Dispose of wastes in accordance to prescribed federal, state, and local guidelines, e.g., appropriately permitted chemical waste incinerator. Do not send down the drain or flush down the toilet. All wastes containing the material should be properly labeled. Rinse waters resulting from spill cleanups should be discharged in an environmentally safe manner, e.g., appropriately permitted municipal or on- site wastewater treatment facility.
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SECTION 14 - TRANSPORT INFORMATION

Transport	Based on the available data, this product/mixture is not regulated as a hazardous material/dangerous good under EU ADR/RID, US DOT, Canada TDG, IATA, or IMDG.
UN number	None assigned.
UN proper shipping name	None assigned.
Transport hazard classes and packing group	None assigned
Environmental hazards	Based on the available data, this product/mixture is not regulated as an environmental hazard or a marine pollutant.
Special precautions for users	Avoid release to the environment.
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Hazardchem Code/HIN	None assigned.

SECTION 15 - REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture	This SDS complies with the requirements under US, EU and GHS (EU CLP - Regulation EC No 1272/2008) guidelines. Consult your local/regional authorities for more information.
Chemical safety assessment	Not conducted.
WHMIS classification	Part 1: EC1:H318 Part 2: EC1:H318 Part 3: EI2:H319; RS1:H334
TSCA status	2-Pyrrolidinone and Triton X-100 are listed in TSCA.
SARA section 313	None of the ingredients of this product are listed.
California proposition 65	None of the ingredients of this product are listed.
Component Analysis - State	2-Pyrrolidinone is listed as hazardous in MA and PA.
Component Analysis – Chemical Inventory	2-Pyrrolidinone and Triton X-100 are listed in the chemical inventory of the following countries: Australia, Canada, China, EU, New Zealand, the Philippines, and USA

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Additional information No other information identified.

SECTION 16 - OTHER INFORMATION

NFPA Ratings	2-Pyrrolidinone	Health: 3	Fire: 1	Reactivity: 0
	Triton X-100	Health: 1	Fire: 0	Reactivity: 0

Full text of H phrases and GHS classifications ATO4 – Acute Toxicity (Oral) Category 4. H302 – Harmful if swallowed. SS1 – Skin sensitizer Category 1. H317 – May cause an allergic reaction. EC1 – Eye corrosion Category 1. E11 – Eye irritant Category 1. H318 – Causes serious eye damage. E12 – Eye irritant Category 2. H318 – Causes serious eye irritation. RS1 – Respiratory sensitizer Category 1. H334 – May cause allergic or asthmatic symptoms or breathing difficulty if inhaled.

Sources of data Information from published literature and internal company data.

Abbreviations ACGIH - American Conference of Governmental Industrial Hygienists; ADR/RID - European Agreement Concerning the International Carriage of Dangerous Goods by Road/Rail; AIHA - American Industrial Hygiene Association; CAS# - Chemical Abstract Services Number; CLP - Classification, Labelling, and Packaging of Substances and Mixtures; DNEL - Derived No Effect Level; DOT - Department of Transportation; EINECS - European Inventory of New and Existing Chemical Substances; ELINCS - European List of Notified Chemical Substances; EU - European Union; GHS - Globally Harmonized System of Classification and Labeling of Chemicals; IARC - International Agency for Research on Cancer; IDLH - Immediately Dangerous to Life or Health; IATA - International Air Transport Association; IMDG - International Maritime Dangerous Goods; LOEL - Lowest Observed Effect Level; LOAEL - Lowest Observed Adverse Effect Level; MA - Massachusetts; NIOSH - The National Institute for Occupational Safety and Health; NOEL - No Observed Effect Level; NOAEL - No Observed Adverse Effect Level; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA - Occupational Safety and Health Administration; PA - Pennsylvania; PNEC - Predicted No Effect Concentration; SARA - Superfund Amendments and Reauthorization Act; STEL - Short Term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; US - United States; WHMIS - Workplace Hazardous Materials Information System

Issue Date 17 September 2015

Revisions This is the first version of this SDS.

Disclaimer The statements contained herein are offered for informational purposes only and are based upon technical data. Fluidigm Corporation believes them to be accurate at the date of publication, but does not purport to be all-inclusive. The above-stated product is intended for use only by persons having the necessary technical skills and facilities for handling the product at their discretion and risk. Since conditions and manner of use are outside our control, we (Fluidigm Corporation.) make no warranty of merchantability or any such warranty, express or implied with respect to information and we assume no liability resulting from the above product or its use. Users should perform their own investigations to determine suitability of information and product for their particular purposes.