

SAFETY DATA SHEET

Product Identifier: Cell-ID™ 20 Plex Pd Barcoding Set

Catalog ID number: item is a subcomponent in 201060 (Cell-ID™ 20 Plex Pd Barcoding Kit)

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

Contact information

General	Fluidigm Corporation 2 Tower Place, Suite 2000, South San Francisco, CA 94080 Main (U.S.): +1 (650) 266-6000 E-mail: Support. techsupport@Fluidigm.com
Emergency telephone number	+1 (650) 266-6100 (outside US) +1 (866) 358-4354 (toll free)

Product identifier	Cell-ID™ 20 Plex Pd Barcoding Set
Synonyms	None identified
Trade names	None identified
Chemical family	Mixture is a solution of palladium in DMSO
Relevant identified uses of the substance or mixture and uses advised against	For research use only. Not for use in diagnostic procedures.
Note	This SDS is written to address potential health and safety issues associated with the handling of the formulated product.
Issue Date	May-2020

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the substance or mixture

Regulation (EC) 1272/2008 [GHS]	Flammable liquid - Category 4. Irritant (skin) - Category 2.
AU Hazard Classification (NOHSC)	NON-DANGEROUS GOODS.

Label elements

CLP/GHS hazard pictogram



CLP/GHS signal word

Warning

CLP/GHS hazard statements

H227 - Combustible liquid. H315 - Causes skin irritation.

CLP/GHS precautionary statements

P201 - Obtain special instructions before use. P210 - Keep away from heat/sparks/ open flames/hot surfaces. - No smoking. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves/eye protection/face protection. P302 + P352 - If on skin: Wash with plenty of soap and water. P321 - Specific treatment (see First Aid information on product label and/or Section 4 of the SDS). P308 + P313 - If exposed or concerned: get medical advice/attention. P332 + P313 - If skin irritation occurs: Get medical advice/attention. P362 - Take off contaminated clothing and wash before reuse. P370 +P378 - In case of fire: Use water spray (fog), foam, dry powder or carbon dioxide for extinction. P403 + P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up. P501 - Dispose of contents/container to location in accordance with local/regional/national/ international regulations.

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SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

<u>Ingredient</u>	<u>CAS #</u>	<u>EINECS/ ELINCS#</u>	<u>Amount</u>	<u>GHS Classification</u>
Palladium(II)			≤ 0.0005%	
Dimethyl sulfoxide	67-68-5	200-664-3	~99.9995%	SI2: H315

Note The ingredients listed above non-hazardous and/or present at amounts below reportable limits. See Section 16 for full text of GHS classifications.

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.

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, oxides of nitrogen, sulfur and platinum-containing compounds.
Flammability/ Explosivity	Combustible liquid and vapor. Keep away from heat and flame. Vapors are heavier than air and may flow along surfaces to remote ignition sources and flashback.
Advice for firefighters	In case of a fire, keep containers cool with water and remove from fire area. Wear full protective clothing and an approved, positive pressure, self-contained breathing apparatus. Wash all equipment thoroughly after use. Dike area if possible to contain water for later disposal.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

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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

Remove sources of ignition. Dike area to contain spill. Maintain ventilation until all vapors have been eliminated. Take precautions as necessary to prevent contamination of ground and surface waters. Absorb and/or contain spill with inert materials (e.g., sand, vermiculite or other appropriate material), then place in appropriate container. For large spills, use water spray to disperse vapors; flush spill area. Do not flush to sewer. Prevent run-off from entering drains, sewers, or waterways.

Reference to other sections

See Sections 8 and 13 for more information.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling

Minimize generation and accumulation of airborne material. Wash thoroughly after handling. Avoid breathing vapor or mist. Do not permit eating/drinking/smoking near this material. All materials used for transferring or preparing this product must be considered contaminated and disposed of properly.

Conditions for safe storage including any incompatibilities

Store at -20°C away from strong oxidizing agents. Keep away from heat and sources of ignition. Store locked up. Store in sealed containers that are appropriately labeled.

Specific end use(s)

No information identified.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Note

Dispose of broken vials/syringes in a sharps container.

Control Parameters/Occupational Exposure Limit Values

<u>Compound</u>	<u>Issuer</u>	<u>Type</u>	<u>OEL</u>
Dimethyl sulfoxide	AIHA	WEEL-TWA	250 ppm
	Austria,	MAK	50 ppm, 160 mg/m ³
	Germany,		
	Switzerland		
	Estonia,	STEL	150 ppm, 500 mg/m ³
	Lithuania,		
	Sweden		
	Estonia,	TWA	50 ppm, 150 mg/m ³
	Lithuania		
	Sweden	TLV	50 ppm, 150 mg/m ³
	Finland	TWA	50 ppm
	Switzerland	STEL	100 ppm, 320 mg/m ³
Germany	Ceiling	100 ppm, 320 mg/m ³	
Denmark	TWA	50 ppm, 160 mg/m ³	
Slovenia	TWA	160 mg/m ³	
Denmark	TWA	50 ppm, 160 mg/m ³	

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Exposure/Engineering controls	If handling bulk product or vials are opened/crushed/broken: Control exposures to below the OEL (if available). Otherwise, selection and use of containment devices and personal protective equipment should be based on a risk assessment of exposure potential. Open handling should not be performed when handling potent substances, or substances of unknown toxicity. Material should be handled inside a closed process, ventilated enclosure, isolator or device of equivalent or better control that is suitable for dusts and/or aerosols.
Respiratory protection	If handling bulk product or vials are opened/crushed/broken: Choice of respiratory protection should be appropriate to the task and the level of existing engineering controls. For routine handling tasks, an approved and properly worn powered air- purifying respirator equipped with appropriate HEPA filters or combination filters should provide ancillary protection based on the known or foreseeable limitations of existing engineering controls. Use 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 air purifying respirators may not provide adequate protection.
Hand protection	Wear nitrile or other impervious gloves if skin contact is possible. Double gloves should be considered. 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. 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 substance, 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

Information on basic physical and chemical properties

Appearance	Clear liquid
Color	Colorless
Odor	No information identified.
Odor threshold	No information identified.
pH	No information identified.
Melting point/freezing point	16.1-18.9°C (61-66°F)
Initial boiling point and boiling range	189°C (372°F)
Flash point	No information identified.
Evaporation rate	No information identified.
Flammability (solid, gas)	No information identified.

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Upper/lower flammability or explosive limits No information identified.

Vapor pressure 0.41 mmHg @ 20°C (68°F)

Vapor density 1.1 g/cm³

Relative density No information identified.

Water solubility Miscible in water.

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.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity No information identified.

Chemical stability Stable under normal temperatures and pressures.

Possibility of hazardous reactions No information identified.

Conditions to avoid Avoid direct sunlight and conditions that might generate heat. Avoid flames, sparks, and other sources of ignition such as shock or friction. Avoid dispersion as a dust cloud.

Incompatible materials Strong oxidizing agents

Hazardous decomposition products No information identified.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

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

Acute toxicity

<u>Compound</u>	<u>Type</u>	<u>Route</u>	<u>Species</u>	<u>Dose</u>
Dimethyl sulfoxide	LD50	Oral	Rat	14.5 g/kg
	LD50	Oral	Rat	28.3 g/kg
	LD50	Oral	Mouse	7.9 g/kg

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LD50 Oral Mouse 21.4 g/kg

Irritation/Corrosion	Dimethyl sulfoxide is a skin irritant in humans and animals.
Sensitization	No information identified.
STOT-single exposure	Three groups of male rats were exposed to an aerosol of 1600 mg/m ³ DMSO for four hours. Groups were sacrificed immediately after exposure, 24 hours after exposure, or two weeks after exposure. There was no mortality and none of the animals displayed outward signs of toxicity during and after exposure to DMSO. Organs appeared normal at necropsy. Single IV injections of undiluted DMSO were administered to groups of male and female rats. Dose levels were 2.5, 5.0, and 10 g/kg. Each dose was administered over a 1-minute interval. Animals were observed for 14 days following DMSO administration. With one exception, deaths occurred within the first 24 hours. Non-lethal doses of DMSO produced decreased motor activity and myasthenia.
STOT-repeated exposure/Repeat-dose toxicity	Male rats were exposed to 200 mg/m ³ DMSO for seven hours/day, five days a week, over six weeks for 30 exposures. There were no outward toxic signs noted in any of the exposed animals throughout the experimental period of six weeks and no effects on blood parameters were reported. DMSO was administered dermally to normal and abraded rabbit skin for 26 weeks at a dose of 1 or 5 g/kg/day. At 23 weeks, treatment was withheld from some animals due to ocular changes; the remaining animals continued to receive DMSO applications for the scheduled 26 weeks. Mortality was high in all groups, however there was no significant differences in mortality between groups. There were no clinical signs to suggest systemic toxicity. DMSO was administered as a 90% solution to rhesus monkeys by gastric intubation, seven days a week for up to 87 weeks. Doses administered were equivalent to 990, 2970, and 8910 mg/kg/day. The principal physical signs seen in the animals given DMSO orally included excess salivation and emesis. These signs occurred sporadically and did not appear to be related to the dose except in the group receiving higher volume of compound. Anorexia occurred at high oral doses but was not evident at the two lower dose levels. No DMSO-related changes were found in the treated monkeys during physical examinations.
Reproductive toxicity	DMSO has been extensively used as a cryoprotectant in the freezing of early experimental animal and human embryos. The viability and apparent normalcy of frozen embryos after thawing suggests that DMSO exposure is not toxic to the early embryo.
Developmental toxicity	DMSO has been associated with teratogenic and/or embryotoxic effects in the hamster, rat, mouse, and chick at high doses. In the hamster, the injection of 500 to 800 mg/kg on the 8th day of gestation was associated with a wide variety of congenital defects, including exencephaly, microphthalmia, bone and limb abnormalities, and as cleft lip. Increased frequencies of fetal death were observed when pregnant rats or rabbits were treated with doses of 5-10 or 1-3 g/kg/day, respectively. However, fetal death was not increased in another study after intraperitoneal treatment of pregnant rats with 6.9 g/kg/day of dimethyl sulfoxide. No malformations were observed in the offspring of rats treated with dimethyl sulfoxide at doses of 0.2-5 g/kg/day during pregnancy.
Genotoxicity	DMSO was negative for genotoxicity in an Ames bacterial cell mutagenicity assay and a sister chromatid exchange assay in Chinese hamster ovary cells. Dimethyl sulfoxide was negative for genotoxicity in an Ames bacterial cell mutagenicity assay and a sister chromatid exchange assay in Chinese hamster ovary cells.
Aspiration hazard	No data available.
Human health data	See Section 2 - "Other hazards"

SECTION 12 - ECOLOGICAL INFORMATION

Toxicity

<u>Compound</u>	<u>Type</u>	<u>Species</u>	<u>Concentration</u>
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Dimethyl sulfoxide	EC ₅₀ /96h	Skeletonema costatum (Diatom)	12.35 - 25.5 g/L
	LC ₅₀ /96h	Pimephales promelas	34 g/L
	LC ₅₀ /96h	Oncorhynchus mykiss	33-37 g/L (static)
	LC ₅₀ /96h	Lepomis macrochirus	>40 g/L (static)
	LC ₅₀ /96h	Cyprinus carpio	41.7 g/L
	EC ₅₀ /24h	Daphnia magna	7 g/L

Bioaccumulative potential	No data identified.
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 the formulated product have not been fully investigated. 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	Not dangerous goods.
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 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.

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OSHA Hazardous

Combustible liquid and vapor. Harmful if swallowed. Causes skin irritation. Can cause damage to immune, hematological, gastrointestinal, and central nervous systems. Potential mutagenicity hazard - contains material which may be mutagenic. Reproductive hazard - can cause adverse reproductive effects in males. Possible developmental hazard - may cause adverse developmental effects and birth defects (based on animal data).

WHMIS classification

B/3 – Combustible Liquid. This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

TSCA status

Listed - inventory.

SARA section 313

Fire Hazard.

California proposition 65

Not listed.

Component Analysis - State

Not listed.

**Component Analysis –
Chemical Inventory**

DMSO is listed in the chemical inventory of the following countries:
Australia, China, Canada, and EU.

SECTION 16 - OTHER INFORMATION

NFPA Ratings

DMSO **Health: 0** **Fire: 2** **Reactivity: 0**

**Full text of H phrases,
P phrases and GHS
classification**

FL4 - Flammable Liquid Category 4. ATO2 - SC1 - Skin corrosion Category 1. EC1 - Eye corrosion Category 1. H227 - Combustible liquid. H300 - Fatal if swallowed. H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye damage. H335 - May cause respiratory irritation. H360FD - May damage fertility. May damage the unborn child. H370 - Causes damage to immune, hematological, gastrointestinal, and central nervous systems. H372 - Causes damage to immune, hematological, gastrointestinal, and central nervous systems through prolonged or repeated exposure.

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; CA - California; 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; ME - Maine; MN - Minnesota; NJ - New Jersey; NIOSH - The National Institute for Occupational Safety and Health; NOEL - No Observed Effect Level; NOAEL - No Observed Adverse Effect Level; NOHSC - National Occupational Health and Safety Commission; NTP - National Toxicology Program; OEL - Occupational Exposure Limit; OSHA - Occupational Safety and Health Administration; PA - Pennsylvania; PNEC - Predicted No Effect Concentration; RI - Rhode Island; 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; WHMIS - Workplace Hazardous Materials Information System

Revisions

Revision 02: CHG-001511
Summary of revision: Updated Fluidigm Corporate Address in section 1, Issue date and revision in footer, section 1 and 16.



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Disclaimer

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