



# Safety Data Sheet

This safety data sheet complies with the requirements of:  
JIS Z 7253:2019

Revision Date 2021-04-22  
Revision Number 5

## 1. Identification

**Product Name** SMART-Seq ICELL8 Forward Indexing Primer Set 1-72  
**Product Code** ST1849  
**Registration number** No information available  
**Details of the supplier of the safety data sheet**

### Supplier

Japan:

Takara Bio Inc.  
Nojihigashi 7-4-38  
Kusatsu, Shiga 525-0058, Japan  
Phone: +81.77.565.6972  
Web: www.takara-bio.com

China:

Takara Biomedical Technology (Beijing) Co., Ltd.  
Life Science Park, 22 KeXueYuan Road, Changping District,  
Beijing 102206, China  
Phone: +86 10 8072 0980  
Web: www.takarabiomed.com.cn

**Emergency telephone number** In case of emergency, call PERS (Professional Emergency Resource Services)  
1-800-633-8253 (US) or 801-629-0667 (international).

### Recommended use of the chemical and restrictions on use

**Identified uses** For research use only. Not for use in diagnostic procedures

**Restrictions on use** No information available

## 2. Hazard(s) identification

### GHS Classification

Acute toxicity - Oral	Classification not possible
Acute toxicity - Dermal	Classification not possible
Acute toxicity - Inhalation (Gases)	Classification not applicable
Acute toxicity - Inhalation (Vapors)	Classification not possible
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin corrosion/irritation	Classification not possible
Serious eye damage/eye irritation	Category 2A
Respiratory sensitization	Classification not possible
Skin sensitization	Classification not possible
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Classification not possible
Reproductive toxicity	Category 1B
Effects on or via lactation	No effects on or via lactation
Specific target organ toxicity (single exposure)	Classification not possible
Specific target organ toxicity (repeated exposure)	Classification not possible
Aspiration hazard	Classification not possible
Acute aquatic toxicity	Classification not possible
Chronic aquatic toxicity	Classification not possible
Ozone	Classification not possible

### GHS label elements



**Signal word** Danger

**Hazard Statements**

Harmful if inhaled  
Causes serious eye irritation  
May damage fertility or the unborn child

**Precautionary statements**

**Prevention**

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood
- Wear protective gloves/protective clothing/eye protection/face protection
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well-ventilated area
- Wash face, hands and any exposed skin thoroughly after handling

**Response**

- IF exposed or concerned: Get medical advice/attention
- 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 person to fresh air and keep comfortable for breathing
- Call a POISON CENTER or doctor if you feel unwell

**Storage**

- Store locked up

**Disposal**

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

**Other hazards**

May be harmful in contact with skin.

**3. Composition/information on ingredients**

**Pure substance/mixture**

Mixture

Chemical name	CAS No	Weight-%	ENCS Inventory	ENCS Number	ISHL Inventory	ISHL No
N,N-Dimethylformamide	68-12-2	40 - 50	Existing	(2)-680	Existing	(2)-680

**Pollutant Release and Transfer Registry (PRTR)**

Not applicable

**Industrial Safety and Health Law**

ISHL Notifiable Substances

ISHL Notifiable Substances - information (safety data sheet) to be supplied; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57-2 and ISHL Ordinance Article 34-2-4)

Chemical name	CAS No	Category	Ordinance number	Content rate %
N,N-Dimethylformamide	68-12-2	ISHL Notifiable Substances	299	40 - 50

Harmful Substances Whose Names Are to be Indicated on the Label

Harmful Substances - names to be indicated on the label; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57 and ISHL Ordinance Article 33)

Chemical name	CAS No	Category	Ordinance number	Content rate %
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N,N-Dimethylformamide	68-12-2	Harmful Substances Whose Names Are to be Indicated on the Label	299	40 - 50
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**Poisonous and Deleterious Substances Control Law**

Not applicable

**4. First-aid measures**

<b>General advice</b>	Show this safety data sheet to the doctor in attendance.
<b>In case of inhalation</b>	Remove to fresh air. If symptoms persist, call a physician. If breathing has stopped, give artificial respiration. Get medical attention immediately.
<b>In case of skin contact</b>	Wash skin with soap and water.
<b>In case of eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
<b>In case of ingestion</b>	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.
<b>Most important symptoms/effects, acute and delayed</b>	May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapors or mists. Use personal protective equipment as required. See section 8 for more information.
<b>Note to physicians</b>	Treat symptomatically.

**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.
<b>Specific hazards arising from the chemical</b>	No information available.
<b>Special Extinguishing Media Large Fire</b>	Cool drums with water spray. CAUTION: Use of water spray when fighting fire may be inefficient.
<b>Special protective equipment and precautions for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

**6. Accidental release measures**

<b>Personal precautions, protective equipment and emergency procedures</b>	Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Avoid breathing vapors or mists. Use personal protective equipment as required.
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<b>For emergency responders</b>	Use personal protection recommended in Section 8.
<b>Environmental precautions</b>	See Section 12 for additional Ecological Information.
<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.
<b>Prevention of secondary hazards</b>	Clean contaminated objects and areas thoroughly observing environmental regulations.
<b>Other information</b>	Refer to protective measures listed in Sections 7 and 8.

## 7. Handling and storage

### Handling

**Advice on safe handling** Remove contaminated clothing and shoes. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing vapors or mists. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product.

**Hygiene Measures** Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

### Storage

**Storage Conditions** Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

## 8. Exposure controls/personal protection

**Engineering controls** Showers  
Eyewash stations  
Ventilation systems.

### Exposure guidelines

Chemical name	Japan Society of Occupational Health	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
N,N-Dimethylformamide 68-12-2	TWA: 10 ppm TWA: 30 mg/m <sup>3</sup> Skin ISHL/ACL: 10 ppm C2A	10ppm	S* TWA: 5 ppm

### Biological occupational exposure limits

Chemical name	Japan Society of Occupational Health	ACGIH
N,N-Dimethylformamide 68-12-2	-	30

**Environmental exposure controls** No information available.

### Personal Protective Equipment

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hand protection** Wear suitable gloves.

**Eye/face protection** If splashes are likely to occur, wear safety glasses with side-shields.

**Skin and body protection** Wear suitable protective clothing.

## 9. Physical and chemical properties

### Information on basic physical and chemical properties

Appearance	Clear, colorless
Physical state	Liquid
Color	No information available
Odor	Amine
Odor Threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	No data available	No information available
Boiling point/boiling range (°C)	No data available	No information available
Flammability (solid, gas)	No data available	No information available
<b>Upper/lower flammability or explosive limits</b>		
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Flash point	No data available	ASTM D 56
Evaporation Rate	No data available	No information available
Autoignition temperature	445 °C / 833 °F	No information available
Decomposition temperature	No data available	No information available
pH	No data available	No information available
<b>Viscosity</b>		
Kinematic viscosity	No data available	No information available
Dynamic Viscosity		No information available
Water solubility	No data available	No information available
Solubility in other solvents	No data available	No information available
Partition Coefficient (n-octanol/water)	No data available	No information available
Vapor pressure	No data available	No information available
Vapor density	No data available	No information available
Relative density	No data available	No information available
<b>Particle characteristics</b>		
Particle Size	No data available	Not applicable
Particle Size Distribution	No data available	Not applicable

**Other information**

Explosive properties	No information available
Oxidizing properties	No information available

**10. Stability and reactivity**

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Excessive heat.
Incompatible materials	None known based on information supplied.
Hazardous Decomposition Products	None known based on information supplied.
<b>Explosion Data</b>	
Sensitivity to static discharge	None.
Sensitivity to mechanical impact	None.

**11. Toxicological information**

**Acute toxicity**

**Numerical measures of toxicity - Product Information**

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	5,833.30 mg/kg
ATEmix (dermal)	2,291.70 mg/kg
ATEmix (inhalation-dust/mist)	3.12 mg/l

**Unknown acute toxicity**

0.89974 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
N,N-Dimethylformamide	= 2800 mg/kg ( Rat )	= 1100 mg/kg ( Rat )	-

Abbreviations and acronyms

Rat: Rat

**Symptoms** May cause redness and tearing of the eyes. Coughing and/ or wheezing.

**Product Information**

**Ingestion** Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Inhalation** May cause irritation of respiratory tract. Specific test data for the substance or mixture is not available. Harmful by inhalation. (based on components).

**Skin contact** Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation. May be harmful in contact with skin.

**Eye contact** Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.

**Skin corrosion/irritation** Based on available data, the classification criteria are not met. Classification not possible. May cause skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitization** Classification not possible.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met. Classification not possible.

**Carcinogenicity** Based on available data, the classification criteria are not met. Classification not possible.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Japan	IARC
N,N-Dimethylformamide 68-12-2	1B	Group 2A

**Legend**

**IARC (International Agency for Research on Cancer)**

Group 2A - Probably Carcinogenic to Humans

**Reproductive toxicity** Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

**Target organ effects  
STOT - single exposure** Liver. Kidney. Respiratory system. Eyes. Skin. Central Vascular System (CVS).  
Based on available data, the classification criteria are not met. Classification not possible.

**STOT - repeated exposure** Based on available data, the classification criteria are not met. Classification not possible.

**Aspiration hazard** Based on available data, the classification criteria are not met. Classification not possible.

**12. Ecological information**

**Ecotoxicity** Classification not possible.

**Percentage for unknown hazards** 0.89974 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Crustacea
N,N-Dimethylformamide	500: 96 h <i>Desmodesmus subspicatus</i> mg/L EC50	10410: 96 h <i>Pimephales promelas</i> mg/L LC50 flow-through 6300: 96 h <i>Lepomis macrochirus</i> mg/L LC50 9800: 96 h <i>Oncorhynchus mykiss</i> mg/L LC50 flow-through	6800 - 13900: 48 h <i>Daphnia magna</i> mg/L EC50 Static 7500: 48 h <i>Daphnia magna</i> mg/L EC50 8485: 48 h <i>Daphnia magna</i> mg/L EC50 semi-static

**Persistence and degradability** No information available.

**Bioaccumulation** There is no data for this product.

**Component Information**

Chemical name	Partition coefficient
N,N-Dimethylformamide 68-12-2	-1.028

**Hazardous to the ozone layer** Classification not possible. Based on available data, the classification criteria are not met.

**Other adverse effects** No information available.

**Endocrine Disruptor Information**

**13. Disposal considerations**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

**14. Transport information**

**IMDG** Not regulated

**ADR** Not regulated

**IATA** Not regulated

**Japan** Not regulated

**15. Regulatory information**

**National regulations**

**Pollutant Release and Transfer Registry (PRTR)**

Not applicable

**Industrial Safety and Health Law**

**Harmful Substances Requiring Workers to Subject to Medical Exams**

Medical Examination - Industrial Safety and Health Law article 66, enforcement order article 22, and the Ordinance on Prevention of Hazards Due to Specified Chemical Substances, Table 5

**Harmful Substances Whose Names Are to be Indicated on the Label**

Harmful Substances - names to be indicated on the label; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57 and ISHL Ordinance Article 33)

**ISHL Notifiable Substances**

ISHL Notifiable Substances - information (safety data sheet) to be supplied; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57-2 and ISHL Ordinance Article 34-2-4)

**ISHL Working Environmental Evaluation Standards - Administrative Control Levels**

Subject to working environment measurements (related to Industrial Safety and Health Law Enforcement Order article 21 and Working Environment Evaluation Standards - administrative control levels). For further specification, refer to section 8 of the SDS.

**Poisonous and Deleterious Substances Control Law**

Not applicable

**Fire Service Law:**

Not applicable

**Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (CSCL)**

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed

Chemical name	CAS No	Chemical Substances Control Law
N,N-Dimethylformamide	68-12-2	Priority assessment chemical substance

**Act on Prevention of Marine Pollution and Maritime Disaster**

Not applicable

**Labor Standards Act**

Occupational illnesses caused by chemical substances - Labor Standards Act article 75, Enforcement Ordinance article 35 and Notification Designating Elements and Compounds of Chemical Substances and Occupational Illnesses Table 1-2 item 4-1

**Air Pollution Control Law**

Air pollutants with regulated emissions standards, Air Pollution Control Act article 3

Volatile organic compound per Air Pollution Control Law article 2, paragraph 4

Hazardous air pollutants (HAPs) per Air Pollution Control Law article 2, paragraph 1, item 3 and Enforcement Order article 1

**International Regulations**

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

**International Inventories**

**IECSC**

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European 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

**16. Other information**

**Revision Date**

2021-04-22

**Revision Note**

No information available.



**Key or legend to abbreviations and acronyms used in the safety data sheet**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	Time weighted average	Ceiling	Maximum limit value
*	Skin designation	+	Sensitizers

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Chemicals Agency  
European Food Safety Authority (EFSA)  
EPA (Environmental Protection Agency)  
Acute Exposure Guideline Level(s) (AEGl(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
World Health Organization

**Disclaimer**

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**End of Safety Data Sheet**