Safety Data Sheet

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)
Classification according to Regulation (EC) No. 1272/2008 [CLP]

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product code	V22886
Product name	Vybrant® DiO cell-labeling solution
Chemical Name	Not Applicable
REACH registration number	No registration number is given yet for this substance / substances in this mixture since the annual import quantity is less than one tonnage per annum or the transition period for its registration according to Article 23 of REACH has not yet expired.

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	For research use only
Use Description Code	SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen), PROC15 - Use as laboratory reagent, PC21 - Laboratory chemicals, SU24 - Scientific research and development
Uses advised against	Not for consumer use.

Details of the supplier of the safety data sheet

Manufacturer / Supplier

LIFE TECHNOLOGIES EUROPE BV
KWARTSWEG 2
2665 NN BLEISWIJK
NETHERLANDS
31-(0)180 392 400
Email: MSDS@lifetech.com

Life Technologies Limited
3 Fountain Drive
Inchinnan Business Park
Paisley
PA4 9RF, UK
+44 (0)141 814 6100

24 hour Emergency Response:	866-536-0631 301-431-8585 Outside of the U.S. ++1-301-431-8585
24 hour Emergency Response for Hazardous Materials [or Dangerous Goods] Incident. Spill, Leak, Fire, Exposure, or Accident. Call CHEMTREC	Within the USA + Canada: 1-800-424-9300 and 1-703-527-3887 Outside the USA + Canada: 1-703-741-5970

Country Specific Emergency Number (if available):

CHEMTREC Ireland (Dublin)	+(353)-19014670 (Greeting Language: English and Irish)
CHEMTREC UK (London)	+(44)-870-8200418 (Greeting Language: English)

SECTION 2: Hazards identification

Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards

Flammable liquids	Category 3

Health hazards

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Acute inhalation toxicity	Category 4
Serious eye damage/eye irritation	Category 2
Reproductive Toxicity	Category 1

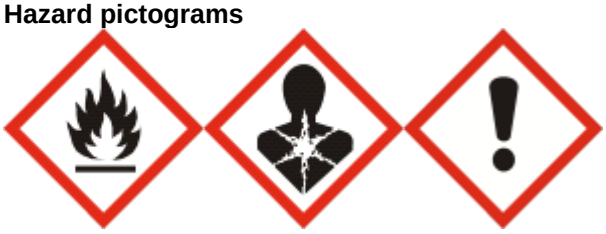
Environmental hazards
Not Hazardous

Additional information
No information available

Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard pictograms



Signal Word
Danger

Hazard Statements
H226 - Flammable liquid and vapour
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled
H319 - Causes serious eye irritation
H360 - May damage fertility or the unborn child

Precautionary Statements

Prevention
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P201 - Obtain special instructions before use
P264 - Wash hands thoroughly after handling

Response
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool

Disposal
P501 - Dispose of contents/ container to an approved waste disposal plant

Other hazards
Not Applicable

SECTION 3: Composition/information on ingredients

Component	CAS No	EINECS-No.	Weight-%	REACH registration number	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Dimethylformamide 68-12-2 (98-100)	68-12-2	200-679-5	98-100	-	Flam. Liq. 3 - H226Tox. 4 - H312Tox. 4 - H3321B - H360

SECTION 4: First aid measures

Description of first aid measures

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Immediate medical attention is required.

Eye contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Ingestion Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Get medical attention if symptoms occur.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. If symptoms persist, call a doctor.

Notes to Physician Treat symptomatically.

Most important symptoms and effects, both acute and delayed
H226 - Flammable liquid and vapour H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled H319 - Causes serious eye irritation H360 - May damage fertility or the unborn child

Indication of any immediate medical attention and special treatment needed
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice/attention.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media	Dry chemical. Alcohol resistant foam. Water spray. Carbon dioxide (CO_2).
Unsuitable extinguishing media	No information available.

Special hazards arising from the substance or mixture
None known

Protective equipment and precautions for firefighters
Wear self-contained breathing apparatus and protective suit.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area)
Avoid breathing vapours or mists
Use non-sparking tools and equipment.
Ensure adequate ventilation
Use personal protection equipment
See section 8 for more information

Environmental precautions
No special environmental precautions required. Avoid discharge into drains and waterways whenever possible.

Methods and material for containment and cleaning up
Small spillage:. Allow to evapourate. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Ventilate the area.
Large spillage:. Dyke for later disposal and cover with wet sand or earth. Immediately contact emergency personnel.

Reference to other sections
See section 8 for more information.

SECTION 7: Handling and storage

Precautions for safe handling
Always wear recommended Personal Protective Equipment. Avoid contact with eyes, skin and clothing. Do not breathe vapors. When using do not smoke, eat or drink. Ground and bond containers when transferring material. See section 8 for more information.

Conditions for safe storage, including any incompatibilities
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep in properly labelled containers. Store in accordance with local regulations.

Storage Conditions
RT in Dark/Protect from Light.

Specific end use(s)
For research use only.

SECTION 8: Exposure controls/personal protection

Control parameters

Chemical Name	EU OEL (TWA)	EU OEL (STEL)	EU Skin Notation
Dimethylformamide 68-12-2	None	None	None

Chemical Name	Austria	Belgium (TWA)	Czech Republic
Dimethylformamide 68-12-2	5 ppm 15 mg/m³	5 ppm 15 mg/m³	15 mg/m³ TWA 30 mg/m³ Ceiling Irritant Potential for cutaneous absorption Potential chronic health effects

Chemical Name	Denmark (TWA)	Finland OEL (TWA)	France OEL (VME)
Dimethylformamide 68-12-2	5 ppm 15 mg/m³	None	5 ppm 15 mg/m³

Chemical Name	Germany OEL (TWA)	Ireland (TWA)	Italy OEL (TWA)
Dimethylformamide 68-12-2	5 ppm exposure factor 2 15 mg/m³ exposure factor 2	5 ppm 15 mg/m³	5 ppm 15 mg/m³

Chemical Name	Lithuania OEL (TWA)	Netherlands OEL (MAC)	Norway
Dimethylformamide 68-12-2	5 ppm 15 mg/m³	15 mg/m³	5 ppm TWA 15 mg/m³ TWA 10 ppm STEL 30 mg/m³ STEL

Chemical Name	Poland	Portugal	Spain OEL (TWA)
Dimethylformamide 68-12-2	15 mg/m³ TWA Skin Notation 30 mg/m³ STEL	10 ppm TWA 30 mg/m³ TWA 10 ppm STEL 30 mg/m³ STEL skin - potential for cutaneous exposure A4 - Not Classifiable as a Human Carcinogen	5 ppm 15 mg/m³

Chemical Name	Sweden - Occupational Exposure Limits - TLVs (LLVs)	Switzerland	United Kingdom
Dimethylformamide 68-12-2	5 ppm TLV NGV; 15 mg/m³ TLV NGV	10 ppm STEL 30 mg/m³ STEL 5 ppm TWA 15 mg/m³ TWA	5 ppm TWA; 15 mg/m³ TWA

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Exposure controls

Personal protection equipment

Respiratory protection In case of insufficient ventilation wear respirators and components tested and approved under appropriate government standards.

Hand protection Wear suitable gloves Glove material: Compatible chemical-resistant gloves.

Eye protection Tight sealing safety goggles.

Skin and Body Protection Wear laboratory coat for body protection.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls
No special environmental precautions required.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Solution	
Odour	No data	
Odour Threshold	No data	
Molecular Weight	No data	
pH	No data	
Melting point / melting range	**°C** No data	**°F** No data
Boiling point / boiling range	**°C** No data	**°F** No data
Flash point	**°C** No data	**°F** No data
Autoignition Temperature	**°C** No data	**°F** No data
Decomposition temperature	**°C** No data	**°F** No data
Evaporation rate	No data	
Flammability (solid, gas)	No data	
Upper explosion limit	No data	
Lower explosion limit	No data	
Vapour Pressure	No data	
Vapour density	No data	
Relative density	No data	
Specific gravity	No data	
Solubility	No data	
Partition coefficient: n-octanol/water	No data	
Viscosity	No data	
Explosive properties	No data	
Oxidising properties	No data	

Other information
No data.

SECTION 10: Stability and reactivity

Reactivity None known.

Chemical stability Stable under normal conditions.

Possibility of hazardous reactions Hazardous reaction has not been reported.

Conditions to avoid High temperature. Proximity to sources of ignition.

Incompatible materials Oxidising agent. Acids. Bases.

Hazardous decomposition products No known hazardous decomposition products.

SECTION 11: Toxicological information

Information on toxicological effects

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Dimethylformamide	= 2000 mg/kg (Rat) = 2800 mg/kg (Rat)	No data available	No data available

Principal Routes of Exposure

Skin corrosion/irritation Data are conclusive but insufficient for classification

Serious eye damage/irritation Irritating to eyes

Respiratory or skin sensitisation Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – single exposure Data are conclusive but insufficient for classification

Specific target organ toxicity (STOT) – repeated exposure Data are conclusive but insufficient for classification

Carcinogenicity Data are conclusive but insufficient for classification

Germ cell mutagenicity Data are conclusive but insufficient for classification

Reproductive Toxicity May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility

Aspiration Hazard Data are conclusive but insufficient for classification

SECTION 12: Ecological information

Ecotoxicity
The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	log Pow
Dimethylformamide	Desmodesmus subspicatus EC50>500 mg/L (96 h)	Daphnia magna EC506800 - 13900 mg/L (48 h) Daphnia magna EC50=8485 mg/L (48 h) Daphnia magna EC50=7500 mg/L (48 h)	No data available	No data available	logPow-1.028

Mobility in soil No information available.

Persistence and degradability No information available.

Bioaccumulative potential No information available.

Results of PBT and vPvB assessment
No information available.

Other adverse effects
Contains a known or suspected endocrine disruptor.

Chemical Name	EU - Endocrine Disrupters Candidate List
Dimethylformamide	Group III Chemical

SECTION 13: Disposal considerations

Waste treatment methods
The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in according to approved disposal technique. Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations.

SECTION 14: Transport information

IATA / ADR / DOT-US / IMDG
This product is subject to the de minimis exceptions for dangerous goods / hazardous materials in accordance with the following regulations: IATA 2.6.10, ADR 3.5.1.4, and U.S. DOT 49 CFR 173.4b.

UN number	2265
UN proper shipping name	N,N-Dimethylformamide
Transport hazard class(es)	3
Packing group	III

Environmental hazards
Not Hazardous

Special precautions for user
Not Applicable

Transport in bulk according to Annex II of MARPOL and the IBC Code
Not Applicable.

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Substances of Very High Concern

Chemical Name	Weight-%	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances for Eventual Inclusion in Annex XIV
Dimethylformamide	98-100	Reason for inclusion Toxic for reproduction, Article 57c

Substance subject to authorisation per REACH Annex XIV
None

Restricted substances under EC 1907/2006, Annex XVII

Chemical Name	Weight-%	EU - REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances
Dimethylformamide	98-100	Use restricted. See item 72. Use restricted. See item 30.

Substances listed under Annex I of Regulation (EC) No 689/2008
None.

Restricted substances under Annex V of Regulation (EC) No 689/2008
None.

Substances under Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC
None.

German Water hazard classes (Wassergefährdungsklassen)

Chemical Name	Weight-%	Water hazard class (WGK)
Dimethylformamide	98-100	hazard class 2 - obviously hazardous to water

Other International Inventories

Chemical Name	EINECS (European Union)	ELINCS (European List of Notified Chemical Substances)	ENCS (Japan)	PICCS (Philippines)
Dimethylformamide	Listed	-	Listed	Listed

Chemical Name	AICS (Australia)	South Korea (KECL)	Canada (DSL)	NDSL
Dimethylformamide	Listed	Listed	Listed	-

Chemical safety assessment
No Chemical safety assessment has been carried out.

SECTION 16: Other information

Reason for revision	Update according to Commission Regulation (EU) No 830/2015
Revision number	3
Revision date	21-May-2020

References
• ECHA: http://echa.europa.eu/
• TOXNET: http://toxnet.nlm.nih.gov/
• eChemPortal: http://www.echemportal.org/
• LOLI database: https://www.chemadvisor.com/loli-database

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Flammable liquids	Category 3	Calculation method
Acute oral toxicity	Category 4	Calculation method
Acute dermal toxicity	Category 4	Calculation method
Acute inhalation toxicity	Category 4	Calculation method
Serious eye damage/eye irritation	Category 2	Calculation method
Reproductive Toxicity	Category 1	Calculation method

"The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since the Company cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS SDS DOES NOT CONSTITUTE A WARRANTY, EXPRESSED OR IMPLIED,INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE"