

ALDEFLUOR[™] ASSAY BUFFER

EFFECTIVE DATE: 2014-11-03

1 Product and Company Identification

1.1	Product Name:	ALDEFLUOR™ Assay Buffer
1.2	Catalog Number:	01701, 01702
1.3	Synonyms:	Not Available
1.4	Product Use:	For Laboratory Research Purposes
1.5	Manufacturer/Supplier:	STEMCELL Technologies Inc. Suite 500-1618 Station Street Vancouver, British Columbia V6A 1B6 Canada
4.0		4 000 007 0000

1.6 In Case of Emergency Call: 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture according to the Globally Harmonised System (GHS).

2.2 Label elements

Not a hazardous substance or mixture.

2.3 Other hazards Human source material

3 Composition / Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	EC #
Human source material	No data available	No data available	No data available

4 First Aid Measures

4.1 Description of first aid measures

4.1.1 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

4.1.2 In case of skin contact

Wash off with soap and plenty of water.

4.1.3 In case of eye contact

Flush eyes with water as a precaution.

4.1.4 If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available



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5 Fire Fighting Measures

5.1 Extinguishing Media

Suitable Extinguishing Media Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Fire Fighting Instructions

Wear self-contained breathing apparatus for firefighting if necessary.

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors, mist or gas. For personal protection see section 8.

6.2 Environmental precautions

No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up

Keep in suitable, closed containers for disposal.

7 Handling and Storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8 Exposure Controls/Personal Protection

8.1 Exposure limits

Contains no substances with occupational exposure limit values.

8.2 Engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

8.3 Personal protective equipment

8.3.1 Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.3.2 Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.



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Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.3.3 Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.3.4 General hygiene considerations

General industrial hygiene practice.

8.3.5 Other protection

Human source: Appropriate safety procedure must be followed for human source material as found in: <u>Canadian Biosafety Standards and Guidelines (CBSG)</u>, *First* <u>Edition</u>.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

	-
Appearance	Transparent fluid
Odour	No data available
Odour threshold	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Decomposition temperature	No data available
Relative density	No data available
Solubility in water	No data available
Solubility in other liquids	No data available
рН	6.5 - 7.1
Partition coefficient: n-octanol/water	No data available
Viscosity	No data available
Vapour pressure	No data available
Vapour density	No data available
Evaporation rate	No data available
Flash point	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Auto-ignition temperature	No data available

9.2 Other information

No data available

10 Stability and Reactivity

10.1 Reactivity

No data available

01701_01702-SDS_GHS



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	DEFL	JOR™ ASS/	AY BUFFER	EFFECTIVE DATE: 2014-11-
	10.2	Chemical s	stability	No data available
	10.3	Possibility	of hazardous reactions	No data available
	10.4	Conditions	s to avoid	No data available
	10.5	Incompatik	ole materials	No data available
	10.6	Hazardous	decomposition products	No data available
11	Тохі	cological l	nformation	
	11.1	Acute toxic	city	
		No data ava	ailable	
	11.2	Skin corro	sion/irritation	
		No data ava	ailable	
	11.3	Serious ey	e damage/eye irritation	
		No data ava	ailable	
	11.4	Aspiration	hazard	
		No data ava	ailable	
	11.5	Specific ta	rget organ toxicity - single ex	kposure
		No data ava	ailable	
	11.6	Specific ta	rget organ toxicity - repeated	l exposure
		No data ava	ailable	
	11.7	Respirator	y and/or skin sensitization	
		No data ava	ailable	
	11.8	Carcinoge	nicity	
		IARC:	identified as probable, possi	ct present at levels greater than or equal to 0.1% is ible or confirmed human carcinogen by IARC.
		ACGIH:		ct present at levels greater than or equal to 0.1% is r potential carcinogen by ACGIH.
		NTP:		ct present at levels greater than or equal to 0.1% is icipated carcinogen by NTP.
		OSHA:		ct present at levels greater than or equal to 0.1% is r potential carcinogen by OSHA.
	11.9	Reproduct	•	
		No data ava	ailable	
	11.10		nutagenicity	
		No data ava		
	11.11	•	symptoms of exposure	
			of our knowledge, the chemica ughly investigated.	al, physical, and toxicological properties have not
	11.12	2 RTECS #	No data available	

12 Ecological Information

12.1 Toxicity

No data available

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<u>AL</u>	ALDEFLUOR [™] ASSAY BUFFER EFFECTIVE DATE: 2014-11-03				
	12.2	Persistence and degradability	No data av	railable	
	12.3	Bioaccumulative potential	No data av	vailable	
	12.4	Mobility in soil	No data av	vailable	
	12.5	Other adverse effects	No data av	railable	
13	-	osal Considerations Waste disposal method	Dispose in federal reg	accordance with local, provincial/state, and ulations.	
14	Tran	sport Information			
	14.1	UN number	No data av	vailable	
	14.2	UN proper shipping name	DOT ADR/RID IMDG IATA	Not dangerous goods Not dangerous goods Not dangerous goods Not dangerous goods	
	14.3	Transport hazard class(es)	No data av	vailable	
	14.4	Packing group	No data av	vailable	
	14.5	Environmental hazards	No data av	railable	
	14.6	Special precautions	No data av	vailable	

15 Regulatory Information

15.1 WHMIS Classification

Not WHMIS controlled

15.2 Regulatory information statement

This SDS was prepared according to the Canadian Controlled Products Regulation and contains all the information required by those regulations.

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

16 Other Information

- **16.1 Prepared by:** Quality Control, STEMCELL Technologies Inc.
- 16.2 Revision: N/A
- **16.3 Notice:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.

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ALDEFLUOR[™] ASSAY BUFFER

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16.4 Disclaimer: THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES.



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HYDROCHLORIC ACID (HCI), 2N

EFFECTIVE DATE: 2015-05-05

1 Product and Company Identification

- 1.1 Product Name: Hydrochloric Acid (HCl), 2N
- **1.2 Catalog Number:** 01704
- **1.3 Product Use:** Laboratory Chemical
- 1.4 Manufacturer/Supplier:
 STEMCELL Technologies

 Suite 500-1618 Station Street
 Vancouver, British Columbia V6A 1B6 Canada
- 1.5 In Case of Emergency Call: 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

Corrosive to metals (Category 1) Skin corrosion (Category 1B) Serious eye damage (Category 1)

2.2 Label elements

Pictogram



V	
Signal word	Danger
Hazard statement(s)	
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
Precautionary statement(s)	
P234	Keep only in original container.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338	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.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
Other hazards	No data available

01704-SDS_GHS

2.3



HYDROCHLORIC ACID (HCI), 2N

EFFECTIVE DATE: 2015-05-05

3 Composition / Information on Ingredients

3.1 Substances

Synonyms	Hydrochloric acid solution, hydrogen chloride
Molecular formula	HCI
Molecular weight	36.46 g/mol

Hazardous Components (Chemical Name)	CAS #	Concentration	EC #
hydrogen chloride	7647-01-0	7.29%	231-595-7

4 First Aid Measures

4.1 Description of first aid measures

4.1.1 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

4.1.3 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

4.1.4 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5 Fire Fighting Measures

5.1 Extinguishing Media

5.1.1 Suitable Extinguishing Media

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

5.1.2 Unsuitable Extinguishing Media No data available

5.2 Special hazards arising from the substance or mixture

5.2.1 Flammable Properties and Hazards

Not flammable or combustible.

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HYDROCHLORIC ACID (HCI), 2N

5.2.2 Flash Pt

No data available

- 5.2.3 Autoignition Pt No data available
- 5.2.4 Explosive Limits

LEL: No data available

UEL: No data available

5.2.5 Hazardous Combustion Products

Hydrogen chloride gas

5.3 Fire Fighting Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7 Handling and Storage

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist. For precautions see section 2.2.

7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8 Exposure Controls/Personal Protection

8.1 Exposure limits

Components with workplace control parameters

Component	CAS #	Value	Control parameters	Basis
hydrogen chloride	7647-01-0	(c)	2 ppm 3 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)



HYDROCHLORIC ACID (HCI), 2N

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Remarks				ased on irritation effects and its adjustment to hedules is not required		
		С	2 ppm	Canada. British Columbia OEL		
		С	5 ppm 7.5 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants		
	A substand	A substance which may not be recirculated in accordance with section 108				
		С	2 ppm	USA. ACGIH Threshold Limit Values (TLV)		
	Remarks		Respiratory T ssifiable as a	ract irritation human carcinogen		
		С	5 ppm 7.5 mg/m ³	USA. NIOSH Recommended Exposure Limits		
		Often u	Often used in an aqueous solution.			
		С	5 ppm 7.5 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants		
			The value in mg/m ³ is approximate. Ceiling limit is to be determined from breathing-zone air samples.			
		С	5 ppm 7.5 mg/m ³	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000		
		TWA	5 ppm 8 mg/m ³	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values		
		Indicati	Indicative			
		STEL	10 ppm 15 mg/m ³	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values		
		Indicati	ve			

8.2 Engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

8.3 Personal protective equipment

8.3.1 Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.3.2 Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.3.3 Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested



HYDROCHLORIC ACID (HCI), 2N

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and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

- **8.3.4 General hygiene considerations** General industrial hygiene practice.
- 8.3.5 Environmental exposure controls Do not let product enter drains.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Colourless liquid
Odour	No data available
Odour threshold	No data available
рН	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

10 Stability and Reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	No data available
10.5 Incompatible materials	No data available
10.6 Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - Hydrogen chloride gas

11 Toxicological Information

11.1 Acute toxicity

Oral:

No data available

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HYDROCHLORIC ACID (HCI), 2N

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Inhalation:	No data available
Dermal:	No data available
Other:	No data available

11.2 Skin corrosion/irritation No data available

11.3 Serious eye damage/eye irritation No data available

11.4 Respiratory and/or skin sensitization No data available

11.5 Germ cell mutagenicity

No data available

11.6 Carcinogenicity

- IARC: 3 Group 3: Not classifiable as to its carcinogenicity to humans (Hydrochloric acid)
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

11.7 Reproductive toxicity

No data available

- **11.8 Specific target organ toxicity single exposure** No data available
- **11.9 Specific target organ toxicity repeated exposure** No data available

11.10 Aspiration hazard

No data available

11.11 Potential health effects

Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

- Ingestion: May be harmful if swallowed.
- Skin: May be harmful if absorbed through skin. Causes skin burns.
- Eyes: Causes eye burns.

11.12 Signs and symptoms of exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence (Sulfuric acid)

11.13 RTECS # No data available

12 Ecological Information

12.1 ToxicityNo data available12.2 Persistence and degradabilityNo data available12.3 Bioaccumulative potentialNo data available



HYDROCHLORIC ACID (HCI), 2N EFFECTIVE DATE: 2015-05-05

12.4 Mobility in soil

12.5 Other adverse effects

No data available No data available

13 Disposal Considerations

13.1 Waste disposal method

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Contaminated packaging

Dispose of as unused product.

14 Transport Information

14.1	UN number	DOT ADR/RID IMDG IATA	1789 1789 1789 1789
14.2	UN proper shipping name	DOT ADR/RID IMDG IATA	Hydrochloric acid HYDROCHLORIC ACID HYDROCHLORIC ACID Hydrochloric acid
14.3	Transport hazard class(es)	DOT ADR/RID IMDG IATA	8 8 8 8
14.4	Packing group	DOT ADR/RID IMDG IATA	
14.5	Environmental hazards	DOT ADR/RID IMDG IATA	Marine pollutant: No No Marine pollutant: No No
14.6	Special precautions	No data ava	ailable

15 Regulatory Information

15.1 USA

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

The following components are subject to reporting levels established by SARA Title III, Section 313:





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Component	CAS #	Revision Date
Hydrogen chloride	7647-01-0	1993-04-24
SARA 311/312:		
Acute Health Hazard		
Massachusetts Right To Know Components		
Component	CAS #	Revision Date
Hydrogen chloride	7647-01-0	1993-04-24
Pennsylvania Right To Know Components		
Component	CAS #	Revision Date
Hydrogen chloride	7647-01-0	1993-04-24
Water	7732-18-5	
New Jersey Right To Know Components		
Component	CAS #	Revision Date
Hydrogen chloride	7647-01-0	1993-04-24
Water	7732-18-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 EU

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

15.3 Canada

WHMIS Classification: E Corrosive Material

This SDS was prepared in accordance with Hazardous Products Regulations (HPR) and WHMIS 2015.

16 Other Information

- **16.1 Prepared by:** Quality Control, STEMCELL Technologies Inc.
- 16.2 Revision: N/A
- **16.3 Notice:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.

16.4 Disclaimer: THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES.



ALDEFLUOR™ DEAB REAGENT, 1.5 MM

EFFECTIVE DATE: 2015-05-05

1 Product and Company Identification

- **1.1 Product Name:** ALDEFLUOR[™] Diethylaminobenzaldehyde (DEAB) Reagent, 1.5 mM in 95% ethanol
- **1.2 Catalog Number:** 01705
- **1.3 Product Use:** Laboratory Chemical
- 1.4 Manufacturer/Supplier: STEMCELL Technologies Suite 500-1618 Station Street Vancouver, British Columbia V6A 1B6 Canada
- 1.5 In Case of Emergency Call: 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

- Flammable liquids (Category 2) Eye irritation (Category 2B)
- 2.2 Label elements

Pictogram



•	
Signal word	Danger
Hazard statement(s)	
H225	Highly flammable liquid and vapour.
H320	Causes eye irritation.
Precautionary statement(s)	
P210	Keep away from heat/sparks/open flames/hot surfaces No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P337+313	If eye irritation persists: Get medical advice/ attention.



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ALDEFLUOR™ DEAB REAGENT, 1.5 MM

EFFECTIVE DATE: 2015-05-05

P370+378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

2.3 Other hazards No data available

3 Composition / Information on Ingredients

3.1 Substances

Hazardous Components (Chemical Name)	CAS #	Concentration	EC #
ethyl alcohol	64-17-5	95%	200-578-6
4-diethylaminobenzaldehyde	120-21-8	0.03%	204-377-4

4 First Aid Measures

4.1 Description of first aid measures

4.1.1 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

4.1.3 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

4.1.4 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5 Fire Fighting Measures

5.1 Extinguishing Media

5.1.1 Suitable Extinguishing Media

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

5.1.2 Unsuitable Extinguishing Media No data available

5.2 Special hazards arising from the substance or mixture

5.2.1 Flammable Properties and Hazards

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.



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5.2.2 Flash Pt

No data available

- 5.2.3 Autoignition Pt
- No data available
- 5.2.4 Explosive Limits LEL: No data available

UEL: No data available

5.2.5 Hazardous Combustion Products

Carbon oxides

5.3 Fire Fighting Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13).

7 Handling and Storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.



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8 Exposure Controls/Personal Protection

8.1 Exposure limits

Components with workplace control parameters

Component	CAS #	Value	Control parameters	Basis	
ethyl alcohol	64-17-5	TWA	1000 ppm 1800 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)	
		TWAEV	1000 ppm 1800 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants	
		STEL	1000 ppm	Canada. British Columbia OEL	
		TWA	1000 ppm	USA. ACGIH Threshold Limit Values (TLV)	
	Remarks	Upper Respiratory Tract irritation			
		Confirme	Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1000 ppm 1900 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants	
		The value in mg/m3 is approximate.			
		TWA	1000 ppm 1900 mg/m ³	USA. NIOSH Recommended Exposure Limits	
		TWA	1000 ppm 1920 mg/m ³	UK. EH40 WEL – Workplace Exposure Limits	
			Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used		

8.2 Engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

8.3 Personal protective equipment

8.3.1 Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.3.2 Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

8.3.3 Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).



ALDEFLUOR™ DEAB REAGENT, 1.5 MM

8.3.4 General hygiene considerations

- General industrial hygiene practice.
- 8.3.5 Environmental exposure controls Do not let product enter drains.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
Odour	No data available
Odour threshold	No data available
рН	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

10 Stability and Reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	Vapours may form explosive mixture with air.
10.4 Conditions to avoid	Heat, flames and sparks. Extremes of temperature and direct sunlight.
10.5 Incompatible materials	No data available
10.6 Hazardous decomposition products	Hazardous decomposition products formed under fire conditions - Carbon oxides

11 Toxicological Information

11.1 Acute toxicity

Oral:	No data available
Inhalation:	No data available



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Dermal: No data available

Other: No data available

- **11.2 Skin corrosion/irritation** No data available
- **11.3 Serious eye damage/eye irritation** Eyes: no data available
- **11.4 Respiratory and/or skin sensitization** No data available
- **11.5 Germ cell mutagenicity** No data available

11.6 Carcinogenicity

- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

11.7 Reproductive toxicity

No data available

- **11.8 Specific target organ toxicity single exposure** No data available
- **11.9 Specific target organ toxicity repeated exposure** No data available
- 11.10 Aspiration hazard

No data available

11.11 Potential health effects

Eyes:	Causes eye irritation.
Skin:	May be harmful if absorbed through skin. Causes skin irritation.
Ingestion:	May be harmful if swallowed.
Inhalation:	May be harmful if inhaled. Causes respiratory tract irritation.

11.12 Signs and symptoms of exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence (Ethanol)

11.13 RTECS # No data available

12 Ecological Information

12.1 ToxicityNo data available12.2 Persistence and degradabilityNo data available12.3 Bioaccumulative potentialNo data available12.4 Mobility in soilNo data available12.5 Other adverse effectsNo data available



ALDEFLUOR™ DEAB REAGENT, 1.5 MM

EFFECTIVE DATE: 2015-05-05

13 Disposal Considerations

13.1 Waste disposal method

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

13.2 Contaminated packaging

Dispose of as unused product.

14 Transport Information

14.1 UN number	DOT ADR/RID IMDG IATA	1170 1170 1170 1170
14.2 UN proper shipping name	DOT ADR/RID IMDG IATA	Ethanol solutions ETHANOL SOLUTION ETHANOL SOLUTION Ethanol solution
14.3 Transport hazard class(es)	DOT ADR/RID IMDG IATA	3 3 3 3
14.4 Packing group	DOT ADR/RID IMDG IATA	
14.5 Environmental hazards	DOT ADR/RID IMDG IATA	Marine pollutant: No No Marine pollutant: No No
14.6 Special precautions	No data av	railable

15 Regulatory Information

15.1 USA

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. **SARA 311/312:**

Fire Hazard, Acute Health Hazard, Chronic Health Hazard



ALDEFLUOR™ DEAB REAGENT, 1.5 mM	EFFECTIVE DATE: 2015-05-05	
Massachusetts Right To Know Components		
Component	CAS #	Revision Date
ethyl alcohol	64-17-5	2007-03-01
Pennsylvania Right To Know Components		
Component	CAS #	Revision Date
ethyl alcohol	64-17-5	2007-03-01
Water	7732-18-5	
4-diethylaminobenzaldehyde	120-21-8	
New Jersey Right To Know Components		
Component	CAS #	Revision Date
ethyl alcohol	64-17-5	2007-03-01
Water	7732-18-5	
4-diethylaminobenzaldehyde	120-21-8	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 EU

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

15.3 Canada

WHMIS Classification: B2 Flammable liquid

This SDS was prepared in accordance with Hazardous Products Regulations (HPR) and WHMIS 2015.

16 Other Information

- 16.1 Prepared by: Quality Control, STEMCELL Technologies Inc.
- 16.2 Revision: N/A
- **16.3 Notice:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.

16.4 Disclaimer: THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES.



DIMETHYLSULPHOXIDE (DMSO)

EFFECTIVE DATE: 2015-05-05

1 Product and Company Identification

- 1.1 Product Name: Dimethylsulphoxide (DMSO)
- 1.2 Catalog Number: 01706
- **1.3 Product Use:** Laboratory Chemical
- 1.4 Manufacturer/Supplier:STEMCELL Technologies
Suite 500-1618 Station Street
Vancouver, British Columbia V6A 1B6 Canada
- 1.5 In Case of Emergency Call: 1-800-667-0322

2 Hazards Identification

2.1 Classification of the substance or mixture

Flammable liquids (Category 4)

2.2 Label elements

Pictogram	None
Signal word	Warning
Hazard statement(s)	
H227	Combustible liquid.
Precautionary statement(s)	
P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P370+378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Other hazards	No data available

3 Composition / Information on Ingredients

3.1 Substances

2.3

Synonyms	Methyl sulfoxide
Molecular formula	C ₂ H ₆ OS
Molecular weight	78.13 g/mol

Hazardous Components (Chemical Name)	CAS #	Concentration	EC #
dimethyl sulfoxide	67-68-5	≤100%	200-664-3





DIMETHYLSULPHOXIDE (DMSO)

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4 First Aid Measures

4.1 Description of first aid measures

4.1.1 If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

4.1.2 In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

4.1.3 In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes as a precaution.

4.1.4 If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in section 2.2 and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5 Fire Fighting Measures

5.1 Extinguishing Media

5.1.1 Suitable Extinguishing Media

Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.

5.1.2 Unsuitable Extinguishing Media

No data available

5.2 Special hazards arising from the substance or mixture

5.2.1 Flammable Properties and Hazards

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

5.2.2 Flash Pt

No data available

5.2.3 Autoignition Pt

No data available

5.2.4 Explosive Limits

LEL: No data available

UEL: No data available

5.2.5 Hazardous Combustion Products

Carbon oxides, sulphur oxides

5.3 Fire Fighting Instructions

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.



DIMETHYLSULPHOXIDE (DMSO)

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6 Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7 Handling and Storage

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

8 Exposure Controls/Personal Protection

8.1 Exposure limits

Components with workplace control parameters

Component	CAS #	Value	Control parameters	Basis
dimethyl sulfoxide	67-68-5	TWA	250.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)

8.2 Engineering controls

Use mechanical exhaust or laboratory fumehood to avoid exposure.

8.3 Personal protective equipment

8.3.1 Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.3.2 Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.



DIMETHYLSULPHOXIDE (DMSO)

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8.3.3 Respiratory protection

Respiratory protection not required. For nuisance exposures use type OV/AG (US) or type ABEK (EU EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.3.4 General hygiene considerations General industrial hygiene practice.

8.3.5 Environmental exposure controls Do not let product enter drains.

9 Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance	Clear, colourless liquid
Odour	No data available
Odour threshold	No data available
рН	No data available
Melting point/freezing point	16 - 19°C (61 - 66°F)
Boiling point/boiling range	189°C (372°F)
Flash point	87°C (189°F) - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit - 42% (V)
	Lower explosion limit - 3.5% (V)
Vapour pressure	0.55 hPa (0.41 mmHg) at 20°C (68°F)
Density	1.1 g/mL
Relative vapour density	2.70 - (Air = 1.0)
Solubility	H ₂ O - completely miscible
Partition coefficient: n-octanol/water	log Pow: -2.03
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available

10 Stability and Reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	Heat, flames and sparks.
10.5 Incompatible materials	Acid chlorides, phosphorus halides, strong acids, strong oxidizing agents, strong reducing

agents

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DIMETHYLSULPHOXIDE (DMSO)

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10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions - Carbon oxides, sulphur oxides

11 Toxicological Information

11.1 Acute toxicity

Oral:	LD50 Oral - Rat - 14,500 mg/kg
Inhalation:	LC50 Inhalation - Rat - 4 h – 40,250 ppm
Dermal:	LD50 Dermal - Rabbit - > 5000 mg/kg
Other:	No data available
	00

11.2 Skin corrosion/irritation No data available

- **11.3 Serious eye damage/eye irritation** No data available
- **11.4 Respiratory and/or skin sensitization** No data available

11.5 Germ cell mutagenicity

Genotoxicity in vitro - Mouse – lymphocyte Cytogenetic analysis

Genotoxicity in vitro - Mouse - lymphocyte

Mutation in mammalian somatic cells

Genotoxicity in vivo - Rat - Intraperitoneal

Cytogenetic analysis

Genotoxicity in vivo - Mouse - Intraperitoneal

DNA damage

11.6 Carcinogenicity

Carcinogenicity - Rat - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Carcinogenicity - Mouse - Oral

- Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.
- IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

11.7 Reproductive toxicity

Reproductive toxicity - Rat – Intraperitoneal

Effects on Fertility: Abortion.



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Reproductive toxicity - Rat - Intraperitoneal

Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - Rat - Subcutaneous

Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Reproductive toxicity - Mouse - Oral

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity - Mouse - Intraperitoneal

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

11.8 Specific target organ toxicity - single exposure

No data available

11.9 Specific target organ toxicity - repeated exposure

No data available

11.10 Aspiration hazard

No data available

11.11 Potential health effects

Inhalation: May be harmful if inhaled. May cause respiratory tract irritation.

Ingestion: May be harmful if swallowed.

- Skin: May be harmful if absorbed through skin. May cause skin irritation.
- Eyes: May cause eye irritation.

Aggravated Medical Condition: Avoid contact with DMSO solutions containing toxic materials or materials with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body.

11.12 Signs and symptoms of exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Effects due to ingestion may include: Nausea, Fatigue, Headache

Eyes - Eye disease - Based on Human Evidence

11.13 RTECS # PV6210000

12 Ecological Information

12.1 Toxicity

Toxicity to fish

LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/L - 96 h

LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/L - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 24,600 mg/L - 48 h (OECD Test Guideline 202)



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Toxicity to algae

EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/L - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability

Result: 31 % - According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 301D)

12.3	Bioaccumulative potential	No data available
12.4	Mobility in soil	No data available
12.5	Other adverse effects	No data available
		Stability in water: - 0.12 - 1.2 h at 30°C Remarks: Hydrolyses readily.

13 Disposal Considerations

13.1 Waste disposal method

Offer surplus and non-recyclable solutions to a licensed disposal company. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber.

13.2 Contaminated packaging

Dispose of as unused product.

14 Transport Information

14.1 UN number	DOT ADR/RID IMDG IATA	1993 Not dangerous goods Not dangerous goods Not dangerous goods
14.2 UN proper shipping name	DOT ADR/RID IMDG IATA	Combustible liquid, n.o.s. (Dimethyl sulfoxide) Not dangerous goods Not dangerous goods Not dangerous goods
14.3 Transport hazard class(es)	DOT ADR/RID IMDG IATA	NONE Not dangerous goods Not dangerous goods Not dangerous goods
14.4 Packing group	DOT ADR/RID IMDG IATA	III Not dangerous goods Not dangerous goods Not dangerous goods
14.5 Environmental hazards	DOT ADR/RID IMDG IATA	Marine pollutant: No Not dangerous goods Not dangerous goods Not dangerous goods
14.6 Special precautions	No data av	vailable





DIMETHYLSULPHOXIDE (DMSO)

EFFECTIVE DATE: 2015-05-05

15 Regulatory Information

15.1 USA

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312:

Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Component	CAS #	Revision Date		
dimethyl sulfoxide	67-68-5	2007-03-01		
New Jersey Right To Know Components				
Component	CAS #	Revision Date		
dimethyl sulfoxide	67-68-5	2007-03-01		

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 EU

This SDS was prepared in accordance with Regulation (EC) No.1272/2008 and European Directive 67/548/EEC as amended.

15.3 Canada

WHMIS Classification: B3 Combustible Liquid

This SDS was prepared in accordance with Hazardous Products Regulations (HPR) and WHMIS 2015.

16 Other Information

- 16.1 Prepared by: Quality Control, STEMCELL Technologies Inc.
- 16.2 Revision: N/A
- **16.3 Notice:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product. The information contained in this Safety Data Sheet (SDS) is current as of the Effective Date shown in this document and may be subject to amendment by STEMCELL Technologies Inc.

16.4 Disclaimer: THIS PRODUCT IS FOR RESEARCH USE ONLY. NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES.