



SAFETY DATA SHEET

Document Type AGHS - OSHA GHS

Revision date 26-Nov-2014

Version 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name Dual luciferase Assay Buffer
Product No DLAR-2/DLAR-2B

Recommended use of the chemical and restrictions on use

Recommended use This product is for research and development only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier address Targeting Systems
1453 N Cuyamaca St
El Cajon, CA 92020, USA

Company phone number 619-562-1518
866-620-4018 (toll free)

Telefax 619-562-1326

E-mail address info@targetingsystems.net

10:30am - 5:00pm Monday-Friday Pacific

2. HAZARDS IDENTIFICATION

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health.

Appearance Colorless

Physical state Liquid

Odor Mild

Hazards not otherwise classified (HNOC)

Other information

Note: No data available

Product name Firefly-Renilla Dual Luciferase Assay Buffer

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Product No DLAR-2/DLAR-2B

Specification No No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

The product contains no substances which at their given concentration, are considered to be hazardous to health.

4. FIRST AID MEASURES

First aid measures

General advice

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the product

No information available.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment [PPE]

Use personal protection recommended in Section 8.

Product name

Firefly-Renilla Dual Luciferase Assay

Specification No No information available

Environmental precautions

See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. This material and its container must be disposed of as hazardous waste.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage temperature

Refer to www.targetingsystems.net for specific information.

Storage conditions

Keep/store only in original container.

Incompatible materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well ventilated areas.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Colorless
Odor	Mild

Property

5HPDUNV;0HWKRG

pH

Refer to

Melting point/freezing point

www.targetingsystems

Boiling point / boiling range

.net for specific information

Flash point

No information available

Evaporation rate

No information available

Flammability (solid, gas)

No information available

Flammability Limit in Air

No information available

Upper flammability limit

No information available

Lower flammability limit

No information available

Vapor pressure

No information available

Vapor density

No information available

Relative density

No information available

Specific gravity

No information available

Water solubility

No information available

Solubility in other solvents

No information available

Partition coefficient

No information available

Autoignition temperature

No information available

Decomposition temperature

No information available

Kinematic viscosity

No information available

Dynamic viscosity

No information available

Explosive properties

No information available

Oxidizing properties

No information available

Other information

Softening point

No information available

Molecular weight

No information available

VOC content (%)

No information available

Density

No information available

Bulk density

No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Can react briskly with oxidizers - danger of explosion.

Conditions to avoid

Incompatible materials. Ignition sources. Heat.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO₂).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	Mild
Serious eye damage/eye irritation	Mild
Irritation	Mild
Corrosivity	Mild
Sensitization	
Skin	No information available
Respiratory	No information available
Germ cell mutagenicity	No information available
Carcinogenicity	No information available
Reproductive toxicity	No information available
Developmental toxicity	No information available
Teratogenicity	No information available
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Chronic toxicity	No information available
Subchronic toxicity	No information available
Target organ effects	Kidneys, Eyes, Skin, Respiratory system.
Neurological effects	No information available
Other adverse effects	No information available
Aspiration hazard	No information available

Numerical measures of toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg

12. ECOLOGICAL INFORMATION

Marine pollutant

No information available

Ecotoxicity

No information available

2% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability

No information available

Bioaccumulation

No information available

Mobility

No information available

Other adverse effects

Ozone No information available

Ozone depletion potential (ODP) No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Relevant information

Keep out of drains, sewers, ditches and waterways.

Disposal considerations

Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging

Empty containers must be tripled rinsed prior to disposal.

14. TRANSPORT INFORMATION

DOT

Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies

Legend:

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

US Federal Regulations

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

Product name

Firefly-Renilla Dual Luciferase Assay

Specification No No information available

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations**U.S. EPA Label Information**

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION				
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<u>NFPA</u>	Health hazards 0	Flammability 0	Instability 0	Special Hazard -
<u>HMIS</u>	Health hazards 0	Flammability 0	Physical hazards 0	Personal protection -

Prepared by

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619-562-1518
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Prepared by

Targeting Systems

Issue date

No data available

Revision note

SDS is valid 3 years from revision date. Contact info@targetingsystems.net for latest revision.

Disclaimer

IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of Targeting Systems, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Targeting Systems will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet



SAFETY DATA SHEET

Document Type AGHS - OSHA GHS

Revision date 21-Jul-2016

Version 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name DLAR-2/DLAR-2B Substrate (100X RLAR Substrate)
Product No DLAR-2/DLAR-2B

Recommended use of the chemical and restrictions on use

Recommended use This product is for research and development only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address Targeting Systems
1453 N Cuyamaca St
El Cajon, CA 92020, USA
USA

Company Phone Number 619-562-1518
866-620-4018 (toll free)

Telefax 619-562-1326
E-mail address info@targetingsystems.net


10:30am - 5:00pm Monday-Friday
Pacific

2. HAZARDS IDENTIFICATION

Classification

Carcinogenicity	Category 1A
Flammable liquids	Category 2

Label elements

Emergency Overview		
Danger		
Hazard statements May cause cancer Highly flammable liquid and vapor		
		
Appearance Colorless	Physical state Liquid	Odor Mild

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/ /? /equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
In case of fire: Use CO₂, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Other information

Toxic to aquatic life with long lasting effects Toxic to aquatic life

Note: No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Chemical Name	CAS No	Weight-%	Trade Secret
Trade Secret	Proprietary	60 - 100	*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures

General advice

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

Flammable.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Remove all sources of ignition. Use personal protective equipment as required.

Product name

DLAR-2/DLAR-2B Substrate (100X RLAR Substrate)

Page 3 / 9

Product No DLAR-2/DLAR-2B

Specification No No information available

Personal protective equipment [PPE]

Use personal protection recommended in Section 8.

Environmental precautions

See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.

Methods and material for containment and cleaning up**Methods for containment**

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities**Storage temperature**

Refer to www.targetingsystems.net for specific information.

Storage Conditions

Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity).

Incompatible materials

None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters**Exposure Guidelines**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Trade Secret	STEL: 1000 ppm	TWA: 1000 ppm TWA: 1900 mg/m ³ (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m ³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³
Trade Secret	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m ³ Ceiling: 5 ppm Ceiling: 7 mg/m ³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³

NIOSH IDLH Immediately Dangerous to Life or Health

Other information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin and body protection

Product name

DLAR-2/DLAR-2B Substrate (100X RLAR Substrate)

Page 4 / 9**Product No** DLAR-2/DLAR-2B**Specification No** No information available

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well ventilated areas.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Colorless
Odor	Mild

Property

Remarks •Method

pH		Refer to www.targetingsystems.net for specific information
Melting point / freezing point		No information available
Boiling point / boiling range	36 °C / 97 °F	
Flash point	14 °C / 57 °F	CC (closed cup)
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Flammability Limit in Air		No information available
Upper flammability limit		
Lower flammability limit		
Vapor pressure		No information available
Vapor density		No information available
Relative density		No information available
Specific gravity		No information available
Water solubility		No information available
Solubility in other solvents		No information available
Partition coefficient		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available
Kinematic viscosity		No information available
Dynamic viscosity		No information available
Explosive properties		No information available
Oxidizing properties		No information available

Other information

Softening point	No information available
Molecular weight	No information available
VOC content (%)	No information available
Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical stability

Stable under normal conditions.

Possibility of hazardous reactions

Can react briskly with oxidizers - danger of explosion.

Conditions to avoid

Incompatible materials. Ignition sources. Heat.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition productsThermal decomposition can lead to release of irritating and toxic gases and vapors. Carbon monoxide. Carbon dioxide (CO₂).**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure****Inhalation**

Avoid breathing vapors or mists. May cause irritation of respiratory tract.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret	= 7060 mg/kg (Rat)	-	= 124.7 mg/L (Rat) 4 h

Information on toxicological effects**Symptoms** No information available.**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

Skin corrosion/irritation	Mild
Serious eye damage/eye irritation	Mild
Irritation	Mild
Corrosivity	Mild
Sensitization	
Skin	No information available
Respiratory	No information available
Germ cell mutagenicity	No information available
Carcinogenicity	This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B)

Chemical Name	ACGIH	IARC	NTP	OSHA
Trade Secret	A3	Group 1	Known	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity	No information available
Developmental toxicity	No information available
Teratogenicity STOT - single exposure	No information available

Product name
DLAR-2/DLAR-2B Substrate (100X RLAR Substrate)**Page 6 / 9****Product No** DLAR-2/DLAR-2B**Specification No** No information available

STOT - repeated exposure

No information available

Chronic toxicity

May cause adverse effects on the bone marrow and blood-forming system May cause adverse liver effects Contains a known or suspected reproductive toxin

Subchronic toxicity

No information available

Target organ effects

Blood, Central nervous system, Eyes, Liver, Reproductive System, Respiratory system, Skin.

Neurological effects

No information available

Other adverse effects

No information available

Aspiration hazard

No information available

Numerical measures of toxicity - Product information

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg mg/l

12. ECOLOGICAL INFORMATION**Marine pollutant**

No information available

Ecotoxicity

No information available

0.001 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Trade Secret	-	13400 - 15100: 96 h Pimephales promelas mg/L LC50 flow-through 100: 96 h Pimephales promelas mg/L LC50 static 12.0 - 16.0: 96 h Oncorhynchus mykiss mL/L LC50 static	-	10800: 24 h Daphnia magna mg/L EC50 2: 48 h Daphnia magna mg/L EC50 Static 9268 - 14221: 48 h Daphnia magna mg/L LC50
Trade Secret	-	282: 96 h Gambusia affinis mg/L LC50 static	-	-

Persistence and degradability

No information available

Bioaccumulation

No information available

Mobility

No information available

Chemical Name	Partition coefficient
Trade Secret	-0.32

Other adverse effects**Ozone**

No information available

Ozone depletion potential (ODP)

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Relevant Information**

Keep out of drains, sewers, ditches and waterways.

Disposal considerations**Product name**

DLAR-2/DLAR-2B Substrate (100X RLAR Substrate)

Page 7 / 9**Product No** DLAR-2/DLAR-2B**Specification No** No information available

Use a licensed professional waste disposal service to dispose of this product. Product may be dissolved in a combustible solvent or absorbed onto a combustible material and burned by a chemical incinerator.

Contaminated packaging

Empty containers must be tripled rinsed prior to disposal.

US EPA Waste Number D001

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Trade Secret	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA -

Legend:

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

US Federal Regulations

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Trade Secret -	Carcinogen Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Trade Secret	X	X	X

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U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA
HMIS

Health hazards 2
Health hazards 2

Flammability 4
Flammability 4

Instability 0
Physical hazards 0

Special Hazard -
Personal protection -

Prepared by

Targeting Systems
619-562-1518

Prepared by

info@targetingsystems.net

Issue date

No data available

Revision note

SDS is valid 3 years from revision date. Contact info@targetingsystems.net for latest revision.

Disclaimer

IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of Targeting Systems, it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Targeting Systems will not be liable for any damages resulting from handling or contact with the product.

End of Safety Data Sheet