



Product Guide for
LudgerClean™ S
Glycan Cleanup Cartridges

Product # LC-S-Ax

(Ludger Product Code: LC-S-Ax, where x denotes pack size)

Ludger Document # LC-S-Ax-Guide-v3.0

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Specifications for LudgerClean™ S Cartridges



- Application** For purification of glycans from a variety of complex mixtures including post-labeling cleanup of LudgerTag™ fluorophore labeled glycans.
- Description** The cartridges contain a glycan binding membrane. This binds to glycans in solutions containing high levels of certain organic solvents (e.g. acetonitrile). Most hydrophobic non-glycan contaminants (e.g. aromatic dyes and detergents) either simply pass through the cartridges or bind very lightly and can be washed off the membrane. The glycans are eluted from the membrane with water.
- Number of Samples** LudgerClean™ S cartridges are designed for single use only.
- Binding Capacity** Each cartridge can bind up to 20 µg of glycan in a volume no greater than 15 µL.
- Suitable Samples** A wide range of glycans can be purified. These include N-linked and O-linked type oligosaccharides, tri-saccharides and larger structures. Substitute 96% acetonitrile with 100% acetonitrile for O-glycan clean-up methods.
- Storage:** Store at room temperature in the dark. Protect from sources of heat, light, and moisture. The cartridges are stable for at least two years as supplied.
- Shipping:** The product can be shipped at ambient temperature.
- Handling:** Ensure that any glass, plasticware or solvents used are free of glycosidases and environmental carbohydrates. Use powder-free gloves for all sample handling procedures and avoid contamination with environmental carbohydrate.
- Safety:** Please read the Material Safety Data Sheets (MSDS's) for all chemicals used.

All processes involving hazardous reagents should be performed using appropriate personal safety protection - eyeglasses, chemically resistant gloves (e.g. nitrile), etc. - and where appropriate in a laboratory fume cupboard

For research use only. Not for human or drug use

Additional Reagents and Equipment Required

- Pure water, HPLC grade (~ 3 ml per sample)
- Acetonitrile, HPLC grade (~ 3 ml per sample)
- 96 % acetonitrile* / 4 % water (v/v) (~ 6 ml per sample) 100% acetonitrile for O-glycan cleanup.
- 30 % acetic acid / 70 % water (v/v) (~ 6 ml per sample)

Introduction

LudgerClean™ S cartridges have been designed for use after fluorescent labeling of glycans for the purification of the fluorophore labeled glycans from excess 2AB/2AA dye.

Time Line for Cleanup

The LudgerClean™ S glycan cleanup procedure typically takes around 80 - 100 minutes :

Procedure	Time	Elapsed Time (minutes)
Wash and prime cartridges	20 min	20
Apply sample	20 min	40
Wash off non-glycan contaminants	20 min	60
Elute glycans	20 min	80

Instructions for Use

1 Prepare the glycan sample

The sample to be cleaned must have a volume of 15 µl or less. If your sample has a greater volume then dry it down using a centrifugal evaporator and reconstitute in not more than 15 µl of water

2 Prime the LudgerClean™ S cartridge

Prime the LudgerClean™ S cartridges (one per sample) by washing each with the following :

- 1st wash - 1 ml water.
- 2nd wash - 5 ml 30 % acetic acid (aq).
- 3rd wash - 1 ml acetonitrile.

Allow each wash to drain completely before adding the next. If flow is restricted, e.g. by an air gap, apply a slight pressure to the top of the cartridge in order to resume normal flow.

3 Spot sample onto cartridge membrane

Spot each sample onto a freshly washed cartridge disc ensuring that the disc is still wet with acetonitrile. Spread the spot over the entire disc surface if possible as this aids cleanup.

4 Allow sample to adsorb onto membrane

Allow adsorption for 15 minutes.

5 Add residual sample from sample vial

Rinse each sample vial with 100 µl acetonitrile and apply to the corresponding cartridge disc.

6 Wash non-glycan contaminants off membrane

Wash each disc with 1 ml acetonitrile, followed by 5 x 1 ml 96 % acetonitrile* / 4% water

*(for cleanup of O-glycans or N- and O- glycans labeled with procainamide, substitute with 100% acetonitrile)

7 Elute glycans off membrane into a suitable container by eluting with 2 x 0.5 ml water.

Allow each 0.5 ml aliquot to drain before the next is applied.

8 Dry the eluted glycans (optional)

If appropriate, evaporate the glycan containing fraction to dryness, then dissolve in a desired volume of water or solvent for further analysis.

9 Protocol Complete

Your glycans are now ready to analyse.

Warranties and Liabilities

Ludger warrants that the above product conforms to the attached analytical documents. Should the product fail for reasons other than through misuse Ludger will, at its option, replace free of charge or refund the purchase price. This warranty is exclusive and Ludger makes no other warrants, expressed or implied, including any implied conditions or warranties of merchantability or fitness for any particular purpose. Ludger shall not be liable for any incidental, consequential or contingent damages.

This product is intended for *in vitro* research only.

Document Revision Number

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SAFETY DATA SHEET

Version: 3.0

 Date written/reviewed: 20th February 2020

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

/ UNDERTAKING

Product Name **LudgerClean S cartridges**
 Product Catalogue Name **LC-S-A6**
 CAS-No. **Unknown**
 Company: Ludger Ltd
 Culham Science Centre
 Abingdon
 Oxfordshire
 OX14 3EB
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SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EU) No. 1272/2008 [EU-GHS/CLP]

This product has been classed as a non-hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

The product does not require any labelling in accordance with EC directives or respective national laws.

Signal Word: None.

Hazard Statement(s)

None.

Precautionary Statement(s)

None.

2.3 Other hazard information:

None.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms: Tube of polypropylene containing a glycan absorption disc

Formula:

Molecular weight:

Component	Concentration
Name Tube of polypropylene containing a glycan absorption disc	-
CAS-No. None	
EC-No. None.	

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General Advice

Consult a physician if exposure causes ill effects and if in any doubt. Show this safety data sheet to the physician/ first responder in attendance.

If Ingested

Rinse mouth well with water, if person is conscious. Do not give anything by mouth if unconscious.

If skin is exposed

Wash the affected area well with soap and water.

If eyes are exposed

Rinse eyes with water/ eye wash solution for at least 5 minutes as a precaution. If safe and easy to do so remove contact lenses and continue rinsing.

If inhaled

Move affected person to a source of ventilation/ fresh air. If not breathing give artificial respiration.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of immediate medical attention and special treatment needed

No data available.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Select extinguishing media appropriate to surrounding area, compatible media's are water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Appropriate according to surrounding fire conditions.

5.2 Special hazards arising from the substance or mixture

No data available.

5.3 Advice for firefighters

Wear self-contained breathing equipment, if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear PPE.

6.2 Environmental Precautions

None required.

6.3 Methods and material for containment and cleaning up

Put the contaminated material and waste product into a suitable container with a lid and arrange disposal.

6.4 Reference to other sections

See Section 13 for more information on disposal.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Handle the product wearing PPE, when used as part of clean up use under extraction, due to the nature of the chemicals used in the process, not the product itself.

7.2 Conditions for safe storage, including any incompatibilities

Store in a dry, well-ventilated area. Keep sealed in container until required preventing contamination.

7.3 Specific end uses

No data available.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

This product contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls

Handle the product wearing Personal protective equipment, wash and dry hands before and after handling the product. General good laboratory and safety practice.

Personal Protective Equipment

Eye / face protection

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

Skin protection

Handle the product wearing gloves. Gloves are to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. Gloves to be checked for tears/holes before use and to be removed using the proper glove removal technique, so that the outer side of the gloves do not touch any skin. Gloves are to be disposed of as contaminated solid waste. See Section 13 for information on waste disposal.

Body Protection

Wear a laboratory coat or similar covering over the operators outside clothing.

Respiratory protection

Respiratory protection is not required with this product (on its own), when used for clean up the chemicals used require that the product is handled under extraction.

Thermal hazards

None.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Constructed of solid plastic and polymeric materials
Odour threshold	None
pH	None
Freezing/Melting Point	None
Initial boiling point and boiling range	None
Flash Point	None
Evaporation rate	None
Flammability	No data available
Upper/lower flammability or explosive limits	None
Vapour Pressure	None
Vapour Density	None
Relative Density	None
Solubility in water	None
Partition coefficient	No data available

Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2 Other information

None

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

The product is stable at the correct storage conditions.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to Avoid

None

10.5 Incompatible materials

None

10.6 Hazardous decomposition products

Other decomposition products.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available.

Skin corrosion/irritation

No data available.

Serious eye damage/irritation

No data available.

Respiratory or skin sensitisation

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity

No data available.

Reproductive toxicity

No data available.

STOT-single exposure

No data available.

STOT-repeated exposure

No data available.

Aspiration hazard.

No data available.

Potential Health Hazards

Inhalation	May be harmful if inhaled.
Ingestion	May be harmful if swallowed.
Skin	May cause irritation to the skin.
Eyes	May causes eye irritation.

Signs and symptoms of exposure

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

Additional Information

No data available.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Other adverse effects

No data available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of by using a licensed professional chemical liquid and solid waste disposal company. To be incinerated.

Contaminated packaging

Dispose of packaging as solid contaminated waste.

SECTION 14. TRANSPORT INFORMATION

14.1 UN Number

ADR/RID: -	IMDG: -	IATA: -
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14.2 UN Proper Shipping Name

ADR/RID:	Not dangerous goods
IMDG:	Not dangerous goods
IATA:	Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: -	IMDG: -	IATA: -
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14.4 Packing group

ADR/RID: -	IMDG: -	IATA: -
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14.5 Environmental hazards

ADR/RID: -

IMDG: -

IATA: -

14.6 Special precautions for user

No data available

SECTION 15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

No data available

15.2 Chemical Safety Assessment

No data available

Please note that the label elements that used to go in Section 15 are now in Section 2.

SECTION 16. OTHER INFORMATION

The advice offered is derived from the current available information on the hazardous materials in this product and its component(s). Consideration has been made regarding the quantities offered in the pre-dispensed container. The advice offered is, therefore, not all-inclusive nor should it be taken as the descriptive of the compound generally.