



**Product Guide for LudgerSep™ N Buffer x40 Concentrate  
for Preparation of LS-N Buffer  
(50 mM Ammonium Formate, pH 4.4)**

**(Ludger Product Code: LS-N-BUFFX40)**

**Ludger Document # LS-N-BUFFX40-Guide v2.0**

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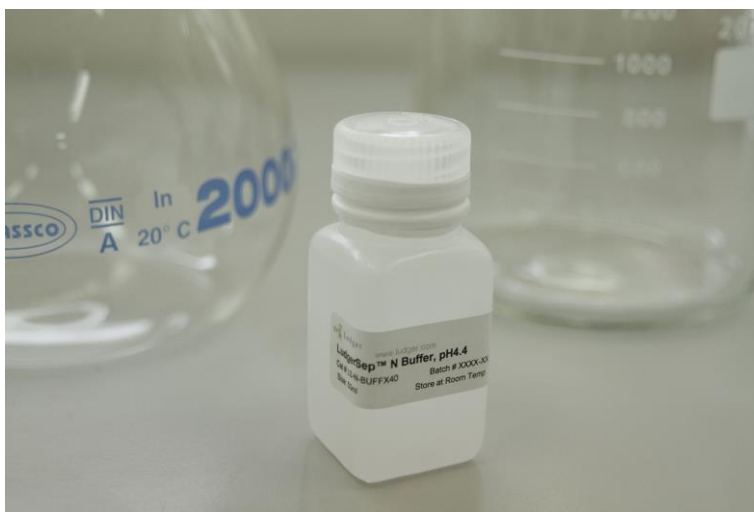
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## Specifications for LS-N-BUFFX40

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<b>Application</b>	For preparation of LS-N buffer (50 mM ammonium formate buffer, pH 4.4) used in amide or HILIC (hydrophilic interaction liquid chromatography) HPLC analysis of LudgerTag™ fluorophore and UV-chromophore labeled glycans.
<b>Description</b>	50ml of x40 LS-N buffer (2.0M ammonium formate buffer/solution) in a square HDPE bottle with leak-proof cap.



<b>Usage</b>	Dilute with de-gassed HPLC grade water (use 1 part of x40 buffer to 39 parts of water) to make LS-N buffer (50 mM ammonium formate, pH 4.4). The 50 ml of x40 buffer will make 2 litres of LS-N buffer.
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Use the LS-N buffer for glycan analysis with any of the following HPLC columns:

- LudgerSep™ N series columns
- Tosoh Amide-80 columns
- Waters ACQUITY UPLC BEH glycan columns
- GlycoSep N and N-Plus columns
- Other HILIC HPLC columns for glycan analysis

<b>Storage</b>	Store unopened bottle below 25 °C. As with any HPLC solvent we recommend preparation of the solvent immediately before use. Take care that the undiluted/diluted solvent is not exposed to excessive heat or sunlight as it contains volatile components. Stability times of the prepared solvent will vary according to your laboratory conditions. Longterm storage of the prepared solvent, ie longer than 1 month, at room temperature, may result in evaporation of some of the volatile components in the solvent leading to a change in retention times.
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## Additional Reagents and Equipment Required

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- Pure water: resistivity 18 M $\Omega$ -cm, particle free (>0.22  $\mu$ m), TOC <10 ppb
- Volumetric flask
- De-gassing station for HPLC solvents\*

\* Optional - depending on your HPLC system

## Safety and Handling

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- Please read the Material Safety Data Sheet (MSDS) and instruction protocol given in this guide before using this product.
- All processes involving this reagent should be performed using appropriate personal safety protection - eyeglasses, good quality chemically resistant gloves (e.g. nitrile), etc. - and where appropriate in a laboratory fume cupboard.
- 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.

# Instruction Protocol

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## 1 Prepare De-gassed HPLC Grade Water (Optional)

Prepare de-gassed HPLC grade water if de-gassed solvents are required for your HPLC system.

*De-gassing of solvents (e.g. by vacuum, sonication or helium sparging) is required for optimal performance of some HPLC systems. Note that the ammonium formate buffer is semi-volatile so water should be de-gassed **before** adding the buffer concentrate.*

## 2 Dilute the Ammonium Formate x40 Buffer and Store

Different volumes of LS-N buffer can be prepared (see table below for details). In each case, transfer x40 buffer to an appropriately sized glass volumetric flask, add de-gassed water to make up to the mark (use 1 part of x40 buffer to 39 parts of water). Stopper the flask and invert to mix. Store the prepared 50mM LS-N buffer at 4°C until use.

*Avoid introducing air into the LS-N buffer. Also, note that ammonium formate is semi-volatile so vigorous degassing of the made up LS-N buffer may cause changes in pH and buffering capacity.*

Total Volume of 50mM LS-N Buffer To Make	Volume of x40 Buffer
2 litres	50 ml (entire contents of LS-N-BUFFX40 bottle)
1 litre	25 ml
500 ml	12.5 ml
250 ml	6.25 ml
100 ml	2.5 ml

## 3 Use the 50mM Ammonium Formate, pH 4.4 LS-N Buffer

Use the 50mM LS-N buffer for glycan HPLC as per the relevant LudgerSep™ N column guide. We recommend the use of solvent line filters for all HPLC solvents.

*The LudgerSep™ N2 column guide gives example gradients for amide HPLC of fluorescently labeled glycans. These conditions can also be used with the other glycan analysis HPLC columns listed in the Specifications section.*

## Related Glycoanalysis Products

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Description	Cat #	Usage / Notes
LudgerSep™ N1 HPLC Column	LS-N1-4.6x250	For separation and analysis of fluorescently labeled glycans by amide HPLC (also known as 'normal phase' or HILIC chromatography). Column dimensions are 4.6x250 mm. Particle size is 5 µm.
LudgerSep N2 HPLC Column	LS-N2-4.6x150	Faster, higher resolution version of the LS-N1 column. Column dimensions are 4.6x150 mm and particle size is 3 µm.
LudgerSep N2 HPLC Microbore Column	LS-N2-2.06x150	Microbore HPLC version of the LS N2 column. Has the advantages of the 4.6 mm LS-N2 column plus lower solvent usage and greater sensitivity. Column dimensions are 2.0x150 mm and particle size is 3 µm.
LudgerTag™ 2-AB Glycan Labeling Kit	LT-KAB-A2	For fluorescent labeling of glycans with 2-AB (2-aminobenzamide). Widely used fluorophore for biopharmaceutical glycoprofiling.
LudgerTag 2-AA Glycan Labeling Kit	LT-KAA-A2	For fluorescent labeling of glycans with 2-AA (2-aminobenzoic acid).
LudgerClean™ S Cartridges	LC-S-A6	For purification of glycans after 2-AB or 2-AA labelling.

## Warranties and Liabilities

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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 warranties, 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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Document # ls-n-buffx40-guide-v2.0.doc

# Material Safety Data Sheet: LS-N-BUFFX40

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## 1. Chemical Product and Company Identification

**Manufacturer** Ludger Ltd, Culham Science Centre, Oxford OX14 3EB, UK  
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 Email: info@ludger.com, Website: www.ludger.com

**Identification of the substance** Ammonium formate, 2M aqueous solution

## 2. Composition and Information on Ingredients

Chemical	CAS No	Classification	Concentration
Ammonium formate	50-69-2	Xi, R36/37/38	< 10%
Water	7732-18-5	-	> 90%

## 3. Hazards identification

Irritating to the eyes, respiratory system and skin

## 4. First aid measures

**Eyes:** irrigate with plenty of water for at least 15 minutes.

**Skin:** wash with soap and water.

**Ingestion:** drink plenty of water.

**Inhalation:** move to a well ventilated area and clear nose and throat.

***If in doubt seek medical advice.***

## 5. Fire and Explosion Data

**Fire fighting measures:** Water spray or appropriate foam according to surrounding fire conditions.

## 6. Accidental Release Measures

Wear appropriate protective clothing. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Wash spill site after material pick up is complete.

## 7. Handling and storage

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Store in a cool place or at room temperature.

## 8. Exposure Controls / Personal Protection

Wear appropriate protective clothing (safety specs, gloves, laboratory coat) in accordance with local



health and safety rules.

## 9. Physical and chemical properties

Clear, colourless liquid. Water soluble.

## 10. Stability and reactivity

Stable under recommended storage conditions.

Avoid exposure to strong oxidising agents and strong acids.

## 11. Toxicological information

May be harmful if swallowed, inhaled or absorbed through skin. May cause irritation, complete toxicological information not available.

## 12. Ecological Information

No data available.

## 13. Disposal considerations

Dilute with excess water, mop up with absorptive material and dispose of according to local regulations.

## 14. Transport Information

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

## 15. Regulatory information

**Hazard Symbols:** Xi (Irritant)

**Risk Phrases:**

R36/37/38 (Irritating to eyes, respiratory system and skin)

**Safety phrases**

S26 (In case of contact with eyes, rinse immediately with plenty of water and seek medical advice)

## 16. Other Information

LS-N-BUFFX40 MSDS version v1.8