eppendorf

Eppendorf LoBind® Tubes and Plates

Instructions for use

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1 Operating instructions

1.1 Using this manual

Before using the consumables for the first time, read these instructions for use and the operating manual of the device that you use the consumables with.

2 Safety

2.1 Intended use

Eppendorf LoBind Tubes and Plates are single-use tubes made from polypropylene for preparing, mixing, centrifuging, transporting and storing solid and liquid samples and reagents.

Eppendorf Microplates can be used in all conventional plate readers.

The product can be used for training, routine and research laboratories in the areas of life sciences, industry or chemistry. This product is intended to be used for research purposes only. Eppendorf does not provide a warranty for other applications. The product is not suitable for use in diagnostic or therapeutic applications. The product may only be used by skilled personnel who have been trained in the areas mentioned above.

2.2 Hazards arising from the intended use



WARNING! Damage to health from toxic, radioactive or aggressive chemicals as well as infectious liquids and pathogenic germs.

- Observe the national regulations for handling these substances, the biosafety level of your laboratory, the material safety data sheets and the manufacturer's application notes..
- Wear your personal protective equipment.
- For comprehensive regulations about handling germs or biological material of risk group II or higher, please refer to the "Laboratory Biosafety Manual" (source: World Health Organization, Laboratory Biosafety Manual, the current edition)./Paragraph.



WARNING! Risk from hazardous substances.
If the tubes are handled improperly the contents of the tube can splash out or escape.

- Only use undamaged tubes and plates.
- Do not fill the tubes and plates above the permitted total volume.
- Make the necessary safety arrangements for transport or storage to prevent materials escaping from the tube. Use stands that are suitable for the tubes.
- Do not freeze the tubes and plates with liquid nitrogen.
- Seal the tubes and plates carefully.
- Use a clip for 5.0 mL Eppendorf Tubes if the tube is heated above 80 °C.
- Do not centrifuge any tubes which are sealed with a clip.



WARNING! For mixers or centrifuges: Risk of contamination if the tube mounts are too large (wells, rotor bores, buckets).
Tubes may be destroyed. The tube contents may be accidentally released.

- Please note height and diameter of the tube. Only use suitable centrifuge inserts or mixer thermoblocks.
- If required, use the adapter intended for this purpose.



WARNING! Risk of contamination from damaged tubes or plates.
Tube and plates may be destroyed if used incorrectly. The substances they contain will be released.

- Seal the tubes and plates carefully.
- Centrifuge tubes and plates at the maximum permitted centrifugation forces only.
- Centrifuge stacked plates at lower rotational speed only.
- Please note that organic solvents can reduce the mechanical resistance of the tubes. In case of doubt, contact Eppendorf Application Support (support@eppendorf.com).



WARNING! Risk of contamination from multiple use.
Consumables are intended for single use only.

- After use, dispose of consumables in accordance with the substances with which they have come into contact.



WARNING! Risk of contamination
Tubes are only sterile in closed packaging. After five years the shelf life expires even in closed packaging.

- Only open the packaging immediately before use.
- Observe the expiry date printed on the packaging.



CAUTION! Risk of contamination when disposing of used consumables.

- Dispose of used consumables in accordance with the substances with which they have come into contact.
- Observe the rules that apply to your laboratory.



NOTICE! Material change of consumables at extreme temperatures.
Extreme temperatures (e.g. during refrigeration or autoclaving) affect the material. The mechanical strength, dimensions and shape of the consumable will change.

- Use consumables that are suitable for the selected temperature range or the selected procedur.



NOTICE! Material damage due to incorrect use.

- Only use the product for its intended purpose as described in the operating manual.
- Ensure adequate resistance of materials when using chemical substances.
- If in doubt, contact the manufacturer of the product.

3 Product description

3.1 Eppendorf LoBind Tubes and Plates

Eppendorf LoBind Tubes and Plates are made from a special polymer. The LoBind material improves the recovery rate of the samples. The tubes are certified free of human DNA, DNase, RNase and PCR inhibitors (PCR clean).

Eppendorf LoBind Tubes are available in the following product versions:

- Eppendorf Protein LoBind for preparation and storage of protein, peptide, antibody, or virus samples.
- DNA LoBind for DNA or RNA applications in forensic analysis, for microarrays and Next Generation Sequencing.

Eppendorf LoBind Tubes are available in four sizes (0.5/1.5/2.0/5.0 mL).

Eppendorf LoBind Tubes are equipped with a graduation as an indicator for the filling quantity and a labeling area for identification.

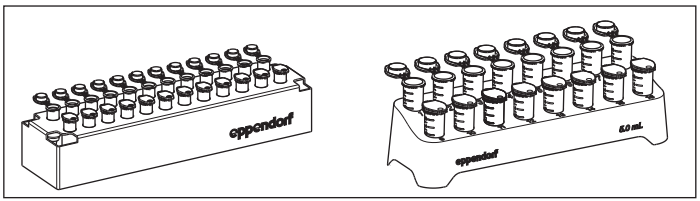


Fig. 3-1: Tubes in a 1.5/2.0 mL and a 5.0 mL tube rack

The Eppendorf LoBind Plates are available as Eppendorf Deepwell Plates and Eppendorf Microplates (*see ordering information*).

4 Applications

DNA LoBind Tubes are not suitable for performing polymerase chain reactions (PCR) or similar amplification reactions.

Using protein LoBind Tubes may increase evaporation time. If you flush the vessels with, for example, water of a buffer prior to use this will improve the evaporation properties.

MALDI applications: Depending on the work protocol, filtration (e.g.with C-18 tips) may be required before crystallization or at the end of sample processing.

4.1 Eppendorf DNA LoBind Tubes and Plates

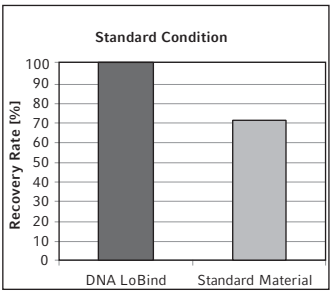
4.1.1 DNA Incubation

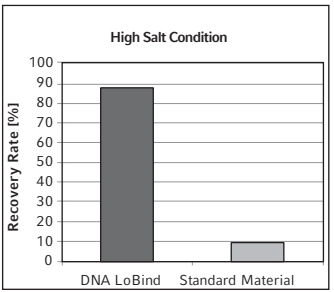
DNA (830 bp) was dissolved in two buffer solutions.

- 0.1 M NaCl/TE buffer (standard condition)
- 2.5 M NaCl/TE buffer (high salt condition)

The respective DNA-solution (0.1 ng/µL) was incubated at 37 °C for 24 hours in two different plates (384-well Deepwell plates made of standard material and Deepwell plates made of Eppendorf DNA LoBind material).

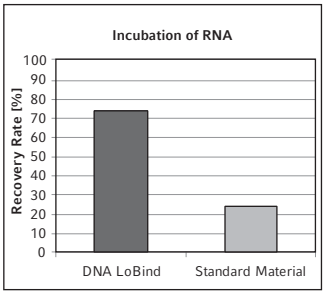
After removing the solution the DNA concentration was determined by means of real-time PCR and the recovery rate (in percent) was determined from that result.





4.1.2 rRNA incubation

A 100 ng/mL rRNA solution in the TE buffer was incubated at room temperature in standard material tubes and DNA LoBind Tubes. After 24 hours, the RNA solutions were brought from the tubes onto a measuring plate and colored with the reagent RiboGreen. The recovery was determined from the measuring results.



4.1.3 Manufacturing and storage of standard preparations in real-time PCR

Aliquots serial dilutions of a standard series for real-time PCR were manufactured and stored in different vessels. When using Eppendorf DNA LoBind Tubes , there was a higher amplification efficiency compared to similar tubes by another manufacturer.

Source: M Lecerf, J. Le Goff, Université Paris, Paris, France (Eppendorf Application Note No. 226)

4.1.4 Extraction of RNA

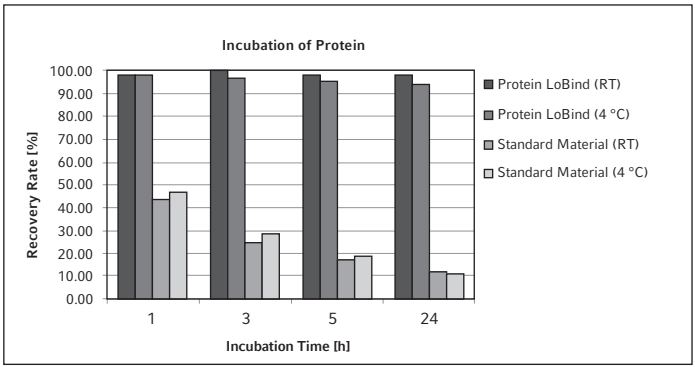
In Eppendorf DNA LoBind Tubes, RNA was isolated from microdissected skin tissue. Combined with the extraction kit used, this resulted in a high RNA yield.

Source: Dr. C. Kruse, Institut für Medizinische Molekularbiologie, Universität Lübeck, D-Lübeck

4.2 Eppendorf Protein LoBind Tubes and Plates

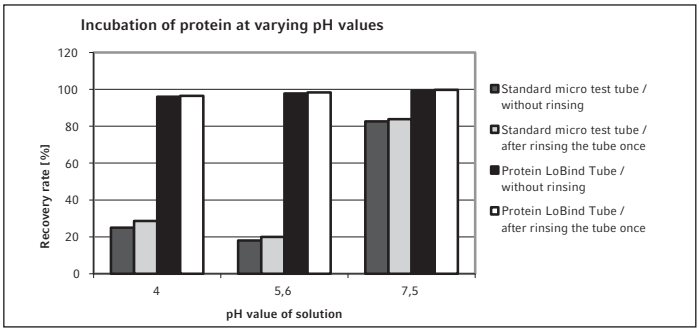
4.2.1 Incubation of proteins at different temperatures

The recovery rate of proteins was determined by measuring the fluorescence after incubating fluorescein-marked BSA at room temperature and 4°C. For this purpose, fluorescein-marked BSA (1 µg/mL) was incubated in 384-well standard material microplates and Protein LoBind material for 24 hours. Samples were taken at different times and the fluorescence intensity was determined.



4.2.2 Incubation of proteins at different pH values

BSA marked with ^{131}I (1 µg/ml) was diluted in 0.1 M acetate, pH 4 and pH 5.6 and in 0.1 M Tris, pH 7.5 and incubated in Eppendorf Protein LoBind Tubes and standard reaction vessels at a temperature of 20°C for 24 hours. Afterwards, the solutions were extracted and the tubes were filled with solutions without BSA as described above. The radioactivity of the vessels and solutions was measured directly and then again after flushing the vessels 1x.



Source: Dr. M. Badertscher, Omnimedica AG, CH-Schlieren

4.3 List of references

4.3.1 Eppendorf Application Notes

No. 180: Eppendorf LoBind®: Evaluation of the protein recovery in Eppendorf Protein LoBind Tubes and Plates

No. 226: Use of Eppendorf LoBind® Tubes for uniform manufacturing and storage of standard preparations for absolute quantification with real-time PCR

4.3.2 References

An extensive reference list of publications, where "Eppendorf LoBind Tubes and Plates" where used in various laboratory protocols, can be found in the Download area of the corresponding Eppendorf LoBind product page on our webpage www.eppendorf.com.

5 Technical data

Material	Polypropylene
Storage before use	Protect from sunlight and UV rays. Store dry at ambient temperature.
Resistance to chemicals	The reaction vessels and plates show a high resistance to UV light and chemicals. Refer to application no. 56: “The best material for original Eppendorf Tubes® and plates: properties and chemical resistance of polypropylene"
Operational temperature	-86 °C - 100 °C
• Eppendorf Tubes 5.0 mL (without clip)	≤ 80 °C
• Eppendorf Tubes 5.0 mL (closed with clip)	≤ 100 °C
Autoclavability	When opened, 121 °C, 20 min

Drawings with the product dimensions can be found in the Download area of the corresponding Eppendorf product page on our website www.eppendorf.com.

Information on suitable closing options for plates can be found on our website www.eppendorf.com.

5.1 Centrifugation stability

The resistance to centrifugation of consumables generally depends on the following conditions:

- Properties of the consumable (e.g., material, shape)
- Combination of centrifuge, rotor and, if applicable, adapter
- Accuracy of fit of the consumable in the rotor bore or adapter
- Centrifugation parameters (speed/*g*-force, temperature, centrifugation time)
- Overall weight of consumable and contents
- Physical and chemical properties of the centrifuged liquid

- Perform a test run to define the suitable conditions for your application.

NOTICE! Consumables heat up.
In non-refrigerated centrifuges, the temperature in the rotor chamber, rotor and sample may increase to above 40 °C, depending on the run time, *g*-force (rcf) / speed and ambient temperature.

- Please note that this will reduce the centrifugation stability of the micro test tubes and plates.
- Please note the temperature resistance of the samples.

The mechanical strength of the tubes is reduced by the use of organic solvents. If in doubt, contact Eppendorf Application Support.

The tubes can be centrifuged with the maximum g-forces (rcf) listed in the table below under the following conditions:

- Eppendorf LoBind Tubes in a 45° fixed-angle rotor
- Eppendorf LoBind Plates in a swing-bucket rotor
- Sample temperature with aqueous saline solution 40 °C
- Duration of centrifugation 90 min

Tube		**Protein LoBind**	**DNA LoBind**
Eppendorf LoBind Tubes	0.5 mL	18 000 × *g*	30 000 × *g*
	1.5 mL	18 000 × *g*	30 000 × *g*
	2.0 mL	18 000 × *g*	25 000 × *g*
	5.0 mL	25 000 × *g*	25 000 × *g*
Eppendorf Deepwell Plates		6 000 × *g*	6 000 × *g*
Eppendorf Microplates		6 000 × *g*	6 000 × *g*

5.2 Eppendorf purity grades

	PCR clean
	
Human DNA-free	■
DNase-free	■
RNase-free	■
PCR inhibitor-free	■

In addition to internal process controls, each batch of products with the Sterile, Protein-free, PCR clean or Biopur purity grades is tested and certified by an accredited external lab.

Batch-specific certificates on the Internet at: www.eppendorf.com/certificates.

6 Ordering information

6.1 Protein LoBind Plates

Order no. (International)	Order no. (North America)	Description
		Microplate 384/V-PP
		80 plates, wells clear, white border color
0030 624.300	951040589	Protein LoBind
		Eppendorf Deepwell Plate 96/2000 µL
		20 plates, wells clear, white border color
0030 504.305	0030504305	Protein LoBind
		Eppendorf Deepwell Plate 96/1000 µL
		20 plates, wells clear, white border color
0030 504.208	951032905	Protein LoBind
		Eppendorf Deepwell Plate 96/500 µL
		40 plates, wells clear, white border color
0030 504.100	951032107	Protein LoBind
		Eppendorf Deepwell Plate 384/200 µL
		40 plates, wells clear, white border color
0030 524.101	951031305	Protein LoBind

6.2 DNA LoBind Plates

Order no. (International)	Order no. (North America)	Description
0030 603.303	0030603303	**Microplate 96/V-PP** 80 plates, wells clear, white border color DNA LoBind
0030 623.304	951040546	**Microplate 384/V-PP** 80 plates, wells clear, white border color DNA LoBind
0030 503.201	951032808	**Eppendorf Deepwell Plate 96/1000 µL** 20 plates, wells clear, white border color DNA LoBind (also for RNA and other nucleic acids)
0030 503.104	951032000	**Eppendorf Deepwell Plate 96/500 µL** 40 plates, wells clear, white border color DNA LoBind (also for RNA and other nucleic acids)
0030 523.105	951031208	**Eppendorf Deepwell Plate 384/200 µL** 40 plates, wells clear, white border color DNA LoBind (also for RNA and other nucleic acids)

6.3 Protein LoBind Tubes

Order no. (International)	Order no. (North America)	Description
0030 108.094	022431064	**Eppendorf Protein LoBind Tubes 0.5 mL** PCR clean, 100 pieces
0030 108.116	022431081	**Eppendorf Protein LoBind Tubes 1.5 mL** PCR clean, 100 pieces
0030 108.132	022431102	**Eppendorf Protein LoBind Tubes 2.0 mL** PCR clean, 100 pieces
0030 108.302	0030108302	**Eppendorf Protein LoBind Tubes 5.0 mL** PCR clean, 100 pieces

6.4 DNA LoBind Tubes

Order no. (International)	Order no. (North America)	Description
0030 108.035	022431005	**Eppendorf DNA LoBind Tubes 0.5 mL** PCR clean, 250 pieces
0030 108.400	0030108400	**Eppendorf DNA LoBind Tubes 0.5 mL** PCR clean, 500 pieces
0030 108.051	022431021	**Eppendorf DNA LoBind Tubes 1.5 mL** PCR clean, 250 pieces
0030 108.418	0030108418	**Eppendorf DNA LoBind Tubes 1.5 mL** PCR clean, 500 pieces
0030 108.078	022431048	**Eppendorf DNA LoBind Tubes 2.0 mL** PCR clean, 250 pieces
0030 108.426	0030108426	**Eppendorf DNA LoBind Tubes 2.0 mL** PCR clean, 500 pieces
0030 108.310	0030108310	**Eppendorf DNA LoBind Tubes 5.0 mL** PCR clean, 200 pieces

6.5 Tube Racks

Order no. (International)	Order no. (North America)	Description
0030 123.107	0030123107	**Tube-rack** for 0.5 mL test tubes
0030 123.115	0030123115	for 1.5 – 2.0 mL test tubes
0030 119.495	0030119495	**Tube rack** for Eppendorf Tubes 5.0 mL 2 pieces

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