WSE-7051

EzRun TBE Instruction Manual

October 17, 2025 4th edition

1.Precautions for safe use of this product

To use this product safely, please read this instruction manual carefully first. Please refrain from operating the product until you fully understand the contents of this instruction manual. This instruction manual describes only how to use this product for the specified purpose. Please refrain from using the product for purposes or in ways not described in this instruction manual. If you use the product for purposes or in ways not described in this instruction manual, you are solely responsible for all necessary safety measures and unforeseen circumstances. Also, please carefully read and understand the instruction manuals of any devices you will be using at the same time.

2.Purpose of use

This product is a gel buffer and electrode buffer for agarose gel electrophoresis and polyacrylamide gel electrophoresis, which separate nucleic acids such as DNA.
It can also be used as a nucleic acid blotting buffer.

3.Product configuration

Name	Volume	Quantity
EzRun TBE	500mL	1

4.Composition

Name	Main components
EzRun TBE	0.89M Tris-boric acid 0.02M EDTA

This product contains substances subject to notification that exceed the exemption quantities specified under the PRTR Act, the Poisonous and Deleterious Substances Control Act, and the Industrial Safety and Health Act. For details, please download and refer to the SDS for this product from the ATTO website (https://www.atto.co.jp).

5.Storage

- Store **EzRun TBE** room temperature (15–30°C), protected from direct sunlight. Unopened products are stable until the expiration date.
- Solutions prepared by diluting **EzRun TBE** should be stored tightly closed at room temperature (15–30°C), protected from direct sunlight.
- Electrophoresis buffer that has been used once cannot be reused.

6.Disposal method

- Dispose of each reagent in accordance with the disposal method of your affiliated institution.
- Bottle Material Body and lid : Polypropylene

7.Items required other than this product

- Magnetic stirrer
- Stirrer bar
- Beaker
- Graduated cylinder
- Medium bottles or other containers
- Distilled water
- Electrophoresis tank
- Power supply
- Agarose
- Acrylamide
- Ammonium persulfate solution
- TEMED
- Nylon membrane
- Filter paper

8.Precations for use

- This product is a 10x stock solution. Dilute according to the instructions before use.
- **EzRun TBE** is sterilized, but be careful sterilized condition may not be maintained if various germs mix after opening a package.
- **EzRun TBE** does not contain preservatives. Please be careful of contamination when opening.

9.How to use

Agarose gel electrophoresis

EzRun TBE is used to prepare the agarose gel and the running buffer.

A. Agarose gel casting

1. Dilute **EzRun TBE** 10 times with distilled water. To prepare 50 mL of gel solution, add 5 mL of **EzRun TBE** to 45 mL of distilled water and mix.
2. Refer to Table 1 and weigh agarose. Add the required volume of 10x diluted **EzRun TBE**.

Table 1. DNA size and agarose gel concentration

DNA size (bp)	Agarose gel concentration (w/v)
1,000-20,000	0.6%
800-10,000	0.7%
500-7,000	1.0%
400-6,000	1.2%
200-3,000	1.5%
100-2,000	2.0%

3. Dissolve the agarose by heating in a microwave or in a water bath

* Caution: High temperatures

Once melted, the agarose solution becomes very hot. It may boil over suddenly.
When handling, protect yourself by using heat-resistant gloves or other protective equipment

4. Pour the agarose solution into the gel cast and let it stand until solidified.

B. Preparation of running buffer
Dilute **EzRun TBE** 10 times with distilled water. To prepare 500 mL of running buffer, add 50 mL of **EzRun TBE** to 450 mL of distilled water and mix

C. Electrophoresis
If you use WSE-1710 Submerge Mini, set the condition as 50V/60min or 100V/30min.

Polyacrylamide gel electrophoresis

EzRun TBE is used to prepare polyacrylamide gel and the running buffer.

A. Polyacrylamide gel casting
1. Dilute **EzRun TBE** 2 times with distilled water to make 5x **EzRun TBE**. To prepare 50 mL of gel solution, add 25 mL of **EzRun TBE** to 25 mL of distilled water and mix.
2. Prepare the gel solution according to Table 2. Cast the gel following the instructions provided with the electrophoresis tank and gel casting kit.

B. Preparation of running buffer
Dilute **EzRun TBE** 10 times with distilled water. To prepare 500 mL of running buffer, add 50 mL of **EzRun TBE** to 450 mL of distilled water and mix

C. Electrophoresis
For one gel, run at a constant current of 10 mA.
- For mini-size gels: 60–70 minutes
- For compact-size gels: 30–40 minutes

Nucleic acid blotting

Use this product as a pretreatment solution for gels, membranes, and filter paper when blotting nucleic acids from polyacrylamide gels, and as a transfer buffer.

Use 5× **EzRun TBE** for membranes and filter paper, and 1× **EzRun TBE** for gels.
Prepare the following solutions in addition to this product.
- Alkaline solution: 0.2 M NaOH, 0.6 M NaCl
- Neutralizing solution: 1.0 M Tris, 0.6 M NaCl

A. Pretreatment of membranes and filter paper
1. Dilute **EzRun TBE** 2 times with distilled water to make 5x **EzRun TBE**. To prepare 500 mL of solution, add 250 mL of **EzRun TBE** to 250 mL of distilled water and mix.
2. Immerse the membrane and filter paper in 5× **EzRun TBE**. Gently agitate the membrane in 5× **EzRun TBE** for 5–10 minutes. Let the filter paper stand in 5× **EzRun TBE** for 5 minutes.

B. Pretreatment of gel
1. Dilute **EzRun TBE** 10 times with distilled water to make 1x **EzRun TBE**. To prepare 500 mL of solution, add 50 mL of **EzRun TBE** to 450 mL of distilled water and mix.
2. After electrophoresis, remove the gel from the glass plate and gently agitate it in the alkaline solution for 15 minutes.
3. Discard the alkaline solution in a waste container and gently agitate the gel in the neutralization solution for 15 minutes.
4. Discard the neutralization solution and gently agitate the gel in 1x **EzRun TBE** for 15 minutes.

C. Semi-dry blotting
When using our semi-dry blotting apparatus, set the filter paper on the cathode and anode sides to a thickness of approximately 10 mm each. For absorbent paper, use 5 sheets on each side. When assembling the filter paper, membrane, and gel, make sure no air bubbles are trapped between the layers. Set the voltage to 12 V and the current to 3 mA × gel area (3 mA/cm²), and apply current for 120 minutes. For example, for one mini gel (approx. 10 × 10 cm), set the voltage to 12 V and the current to around 300 mA

Table 2. Preparation of polyacrylamide gel using **EzRun TBE** * Equivalent to two mini gels, unit: mL

	5%	6%	7.5%	8%	10%	12%	15%
Distilled water	12.6	11.9	10.9	10.6	9.2	7.6	5.9
30% (29:1) acrylamide solution	3.3	4.0	5.0	5.3	6.7	8.3	10
5x **EzRun TBE**	4.0	4.0	4.0	4.0	4.0	4.0	4.0
TEMED	0.01	0.01	0.01	0.01	0.01	0.01	0.01
10 % ammonium persulfate solution	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Additional information

- Follow the instructions provided with your electrophoresis apparatus and power supply when using the equipment.
- For nucleic acid transfer, follow the instructions provided with your blotting apparatus
- The apparatus used for nucleic acid transfer may have maximum current and voltage limits. Check these limit before use.

ATTO CORPORATION

3-2-2 Motoasakusa, Taito-ku, Tokyo 111-0041, JAPAN

https://www.attoeng.com/

Contact