



Technical Data Sheet
(EB - LR22)
Lactobacillus rhamnosus GG

1. Taxonomy:

- Domain: Bacteria
- Phylum: Firmicutes
- Class: Bacilli
- Order: Lactobacillales
- Family: Lactobacillaceae
- Genus: Lacticaseibacillus (formerly Lactobacillus)
- Species: Lacticaseibacillus rhamnosus

2. Microscopic Appearance:

- Gram stain: Positive
- Morphology: Rod-shaped cells
- Size: 0.8–1.0 μm $\times$ 2.0–4.0 μm
- Arrangement: Single or short chains
- Motility: Non-motile
- Spore Formation: Non-spore-forming

3. Culture Description:

- Growth Medium: MRS agar/broth
- Incubation Conditions: Facultative anaerobic / microaerophilic, 30–37°C (48–72 hours)
- Colony Morphology: Small, smooth, white to cream colonies

4. Physiological Characteristics:

- Oxygen Requirement: Facultative anaerobe
- Temperature Range: 20–40°C (optimal 30–37°C)
- pH Range: 4.0–7.0
- Metabolism: Facultative heterofermentative
- Special Feature: Strong adhesion via pili (SpaCBA pili proteins)

5. General Functional Attributes:

- Gut Health: Excellent intestinal colonization ability
- Clinical Validation: One of the most studied probiotic strains globally
- Immune Modulation: Strong immune-enhancing effects
- Anti-Diarrheal: Supports management of antibiotic-associated diarrhea
- Barrier Function: Strengthens intestinal epithelial barrier

6. Test Specifications:

- Appearance: Off-white to cream-colored powder
- Odor: Characteristic, slightly acidic
- Moisture Content: $\leq 7\%$
- Viable Cell Count: 1–400 Billion CFU/g
- Mesh Size: NLT 90 % passes through 60 mesh #

7. Pathogen and Contaminant Testing:

- *Salmonella* spp.: Absent in 25g
- *Escherichia coli*: Absent in g
- *Staphylococcus aureus*: Absent in g
- *Pseudomonas aeruginosa*: Absent in g
- Yeasts and Molds: <100 CFU/g
- Coliforms: Absent in g

8. Heavy Metals Analysis:

- Lead (Pb): <1.0 ppm
- Arsenic (As): <0.5 ppm
- Cadmium (Cd): <0.5 ppm
- Mercury (Hg): <0.1 ppm

9. Packaging and Storage:

- Packaging: Aluminium foil vacuum-sealed bags with desiccant
- Storage Conditions: Store at 2–8°C

- Long Term Storage: -20°C recommended
- Shelf Life: 24 months

10. General Applications:

- Clinical probiotic formulations
- Pediatric and adult supplements
- Functional foods and beverages
- Pharmaceutical/nutraceutical applications

11. Temperature Sensitivity:

- Sensitive to heat and humidity
- Viability decreases above 25°C
- Cold- chain recommended

12. Shelf Life:

- At 2–8°C: ≥90% viability up to 24 months
- At room temperature: Moderate decline

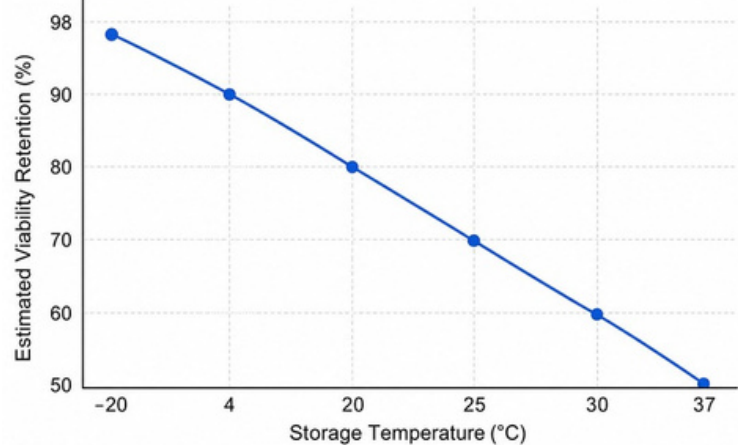
13. Packaging Considerations:

- High-barrier aluminium foil
- Protection from moisture and oxygen
- Nitrogen flushing recommended

14. Stability Summary Table:

Storage Temperature (°C)	Duration	Estimated Viability Retention (%)	Remarks
-20	24 months	>98%	Highly stable
4	24 months	90–95%	Preferred
20	12 months	75–85%	Moderate stability
25	12 months	65–75%	Noticeable decline
30	6 months	50–65%	Rapid decline
37	3–4 months	<50%	Poor stability

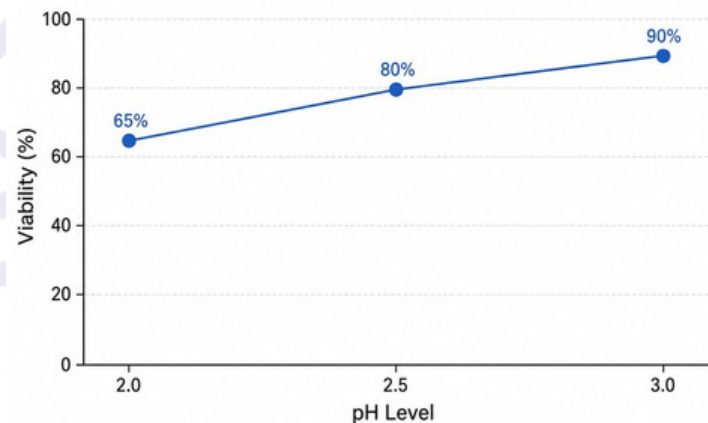
Bile Salt Resistance



15. Acid Tolerance Table:

pH Level	Exposure Time	Viability (%)
2.0	1 hour	55-65%
3.0	1 hour	75-85%
4.0	1 hours	≥90%

Acid Tolerance

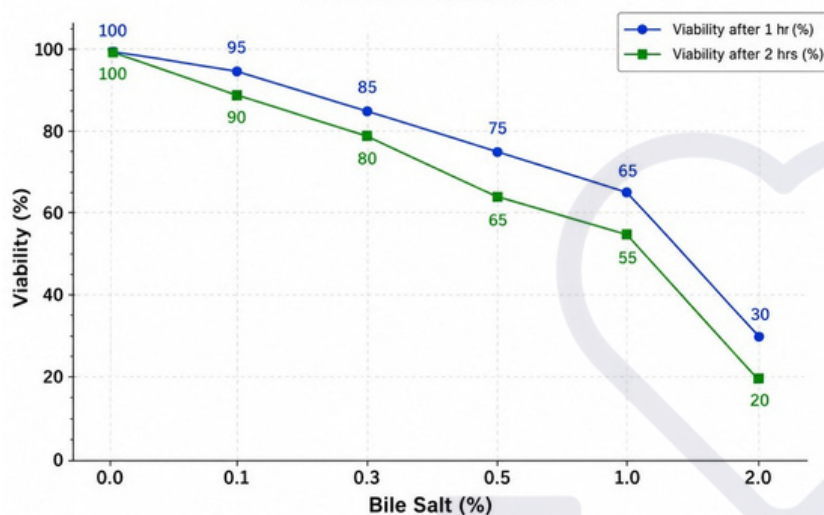


16. Bile Salt Resistance:

Bile Salt Concentration (%)	Viability After 1 Hour (%)	Viability After 2 Hours (%)	Remarks
0.0	100%	100%	Control
0.1%	95-98%	90-95%	Excellent
0.3%	85-90%	80-85%	Strong

Bile Salt Concentration (%)	Viability After 1 Hour (%)	Viability After 2 Hours (%)	Remark
0.5%	75-85%	65-75%%	Moderate
1.0%	<65%	<55%	Stress
2.0%	<30%	<20%	Severe

Bile Salt Resistance



17. Quality Control and Monitoring:

- Batch testing for potency, purity, and safety
- Manufactured under GMP conditions
- Stability studies (real-time & accelerated)
- Certificate of Analysis (CoA) provided

END OF DOCUMENT

"This technical data sheet outlines general specifications. For batch-specific results, please refer to the Certificate of Analysis (CoA)."



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