

## GB C3-ONE™ (Renewable Acetone)

### What is Renewable Acetone?

Unlike petro-acetone, GB C3-ONE™ is produced from fermentation of agriculturally derived sugars utilising Green Biologics' proprietary *Clostridium* microbial biocatalysts. As our acetone is selectively produced by bacteria, and not by processing petroleum distillates, we are capable of providing higher quality material whose production is not coupled to phenol synthesis and global demand for this unrelated compound. It is important to note that GB C3-ONE™ is the same molecule as acetone produced from petrochemical feedstocks, allowing for direct 'drop-in' to existing applications and formulations. As a value-add, no benzene or phenol is used or encountered in our process making GB C3-ONE™ intrinsically free of these impurities.

### Acetone Basics

Acetone is a three-carbon symmetrical ketone that is one of the most widely used industrial and laboratory solvents. The compound is a clear, colourless, flammable, low-boiling, and volatile liquid recognized for its rapid evaporation and its faint aromatic, sweet odour. A hallmark of acetone's utility is its absolute miscibility with water and most organic solvents. Additionally, it is increasingly being used as a chemical intermediate for the production of functionalized compounds such as bisphenol A (BPA), methyl methacrylate (MMA), and methyl isobutyl ketone (MIBK).

### Applications

While most commonly recognized as a solvent, acetone can be a valuable feedstock for the production of diverse functionalized materials (12 % use as a solvent, 75 % use as a chemical intermediate; 1995 data). Direct applications include surface coatings, films, adhesives, cleaning fluids, and laboratory research. Cosmetic products that utilize acetone range from the primary ingredient of some nail polish removers, nail treatments, skin lighteners, and hair spray to personal care products such as wound treatments and foot care (applications where benzene-free acetone could offer an advantage).

### Specifications

Property Tested	Value or Range	Test Method
Total purity	≥ 99.5 %	GC
Methanol	Not detected	GC
Isopropanol	≤ 0.05 %	GC
Benzene	Not detected	GC
Aldehydes	Not detected	GC
Water	≤ 0.3 %	ASTM D1364
Acidity (as Acetic Acid) wt %	≤ 0.002	ASTM D1613
Permanganate Fading Time @ 25 °C min	≥ 90 min	ASTM D1363
Color (APHA; Pt/Co)	5	ASTM D1209
Appearance	Clear; Colorless	ASTM D4176 and visual
Nonvolatile matter wt %	≤ 1 mg / 100 mL	ASTM D1353
Specific gravity @ 20/20 °C	0.7910 - 0.7925	ASTM D4052
Distillation range	≤ 0.5 °C	ASTM D1078
Renewable Carbon wt %	100 %	ASTM D6866