



QIRA® 1,4-Butanediol (BDO)

100% Bio-based

CAS No. 110-63-4

Qore, LLC

Description

1,4-Butanediol is a hygroscopic, odorless, and visually colorless liquid. BDO has a low order of toxicity and is soluble in water, ketones, esters, alcohols, and acetates. BDO is a versatile chemical that has a wide variety of applications as an intermediate due to its primary terminal hydroxyl groups and its chemical resistant nature. QIRA® 1,4-Butanediol (BDO) will be produced from dextrose derived from industrial corn via a fermentation process at a state-of-the-art facility in Eddyville, Iowa. Using a technology licensed from Genomatica® the resulting BDO product will have 100% bio content with a purity of >99.5% and meet conventional market specifications.

The product will have the same CAS Number (110-63-4) and STCC code of 2818540 as fossil-based incumbents currently on the market.

Pilot sample of QIRA® BDO was confirmed to be 100% bio-based basis testing to this standard: ISO-16620-2:2019(AMS) Method C TOC C-14

General Characteristics

Molecular Formula: C₄H₁₀O₂

Molecular Weight: 90.12 g/mol

Melting Point: 20°C

Boiling Point: 230-235°C

Density: 1.017 g/mL

Quality Specifications

Parameter	Specification
Appearance	Pass (clear)
Assay (% BDO)	≥99.5%
Moisture (mg/kg)	<500
Color (APHA)	<10

Ingredients

1,4 butanediol, 100% bio-based

Storage and Shelf-Life

Store in tightly closed container at ambient room temperatures (25C/77F). Store in a well-ventilated place, away from incompatible materials (oxidizing agents, acid chlorides, acid anhydrides, reducing agents). Must be stored under nitrogen blanket; exposure to oxygen, air, or moisture may cause discoloration of product.

BDO (<99.5% purity) will solidify at 20°C.

R&D product has been tested at both ambient and 60C/140F through six months with insignificant change. Based on conventional BDO, a 1–2-year shelf life is expected. Testing will be conducted to validate QIRA's 1-2year shelf life with production material.

For more information on storage and shelf-life conditions, please request the *QIRA (1,4 Butanediol) Storage, Transportation, and Handling Guidelines*.

Regulatory Status

ISCC+ certified

EU REACH compliant

USDA bio-preferred 100% in process



NFPA Diamond



Health: Caution: May be harmful if inhaled or absorbed (2)

Flammability: Combustible if heated (1)

Reactivity: Stable or not reactive with water (0)

BDO Raw Material Derivative Options:

BDO has applications in the following derivatives:

Polytetramethylene ether glycol (PTMEG)

Polybutylene adipate terephthalate (PBAT)

Polybutylene succinate (PBS)

Thermoplastic polyurethane (TPU)

Polyurethane (PU)

Polybutylene terephthalate (PBT)

Polyvinylpyrrolidone (PVP)

N-Methyl-2-pyrrolidone (NMP)