

**UNIPLEX 83**  
**TRI-N-BUTYL CITRATE**  
**CAS. NO 77-94-1**

UNIPLEX 83 is a safe economical plasticizer approved by the U.S. Food and Drug Administration (FDA) for use in both indirect and direct contact food applications according to Code Federal Regulation 21:75.105 (Adhesives)

UNIPLEX 83 has been widely formulated/plasticize in polyvinyl chloride polymers and cellulosic resins as an "environmentally friendly" replacement to the phthalate plasticizers.

The low odor and excellent color stability of UNIPLEX 83 make it an excellent general purpose plasticizer. Cellulose nitrate films plasticized with UNIPLEX 83 have lower volatility loss, better resistance to yellowing and better adhesion to metals than those plasticized with dibutyl phthalate.

UNIPLEX 83 is very effective as a defoamer in protein solutions.

UNIPLEX 83 does not support fungal growth in resins.

Other uses of UNIPLEX 83 include:

- 1) PVC Flooring
- 2) Dairy product cartons
- 3) Drink bottle caps
- 4) Food jar caps

UNIPLEX 83 is economical both on a cost and a performance basis, while exhibiting excellent compatibility with a wide range of polymers and resins. Resins plasticized with UNIPLEX 83 exhibit excellent heat stability and low toxicity.

**SPECIFICATIONS:**

Assay, minimum 99.0%  
Acidity, (as Citric Acid) maximum 0.02%  
Color, maximum 50 APHA  
Water, (Karl Fischer), maximum 0.25%  
Odor Essentially odorless  
Specific Gravity, 25/25°C 1.037-1.045

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PHYSICAL PROPERTIES:

Molecular Weight 360.4  
Refractive Index 25°C 1.443 (typical)  
Weight per gallon, 25°C 8.69 lb  
Boiling Point, 1 mm Hg 173°C  
Viscosity, 25°C 25 -35 cp  
Pour Point -80°F  
Flashpoint, COC 185°C  
Solubility in Water, 25°C Insoluble

**PVC PERFORMANCE OF UNIPLEX 83  
(50 phr in Unfilled PVC)**

<b>PARAMETER</b>	<b>RESULT</b>
Modulus at 100% Elongation, psi (ASTM D-412-41)	1200
Tensile Strength, psi (ASTM D-412-41)	2600
Elongation, % (ASTM D-412-41)	350
Tear Resistance, lb/in thickness (ASTM D-1004-49T)	300
Brittle Temperature, °C (ASTM D-746-44T)	-30
Water Resistance Absorbed, % gain (ASTM D-570-42)	0.31
Soluble Matter, % loss	0.28
Oil Resistance, % loss (ASTM D-543-43)	1.48

**HANDLING INFORMATION:**

Refer to Material Safety Data Sheet

*These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. Suggestions for uses of our products should not be understood as recommendations that they be used in violation of any patents.*

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