

Pentiol Green+™

FROM BIOMASS TO COSMETIC



Biosourced odourless Pentylene Glycol

- ✓ Anti-microbial
- ✓ Solubilizer
- ✓ Emollient
- ✓ Extraction solvent
- ✓ Moisturizer



Specifications and Characteristics

INCI	Pentylene Glycol
CAS REG. N°	5343-92-0
APPEARANCE	Colourless liquid
ODOUR	Odourless
PURITY	Min. 99.0 %
SOLUBILITY	Hydrophilic, readily soluble in water and alcohol
RECOMMENDED PH OF USE	3.0 ▶ 10.0
RECOMMENDED USE LEVEL	0.5 ▶ 5.0 %
REGULATORY STATUS	Globally approved
ORIGIN	100% nature-derived Made from non-food parts of corn (cobs) and sugar cane (bagasse)
CHEMICAL STRUCTURE	<chem>CCCC(O)CO</chem>

MINAFIN®

GROUP

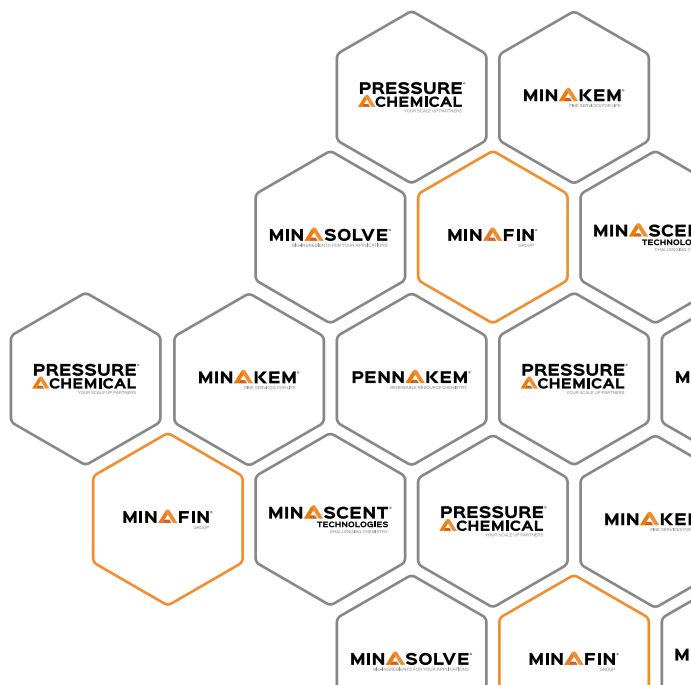
MinaSolve™ is a brand of Minafin® Group

The Minafin® Group, whose affiliates develop and manufacture active pharmaceutical ingredients, organic intermediates and specialty fine chemicals for the life science industries and technical applications **is organized around 5 brands**, each dedicated to specific end-users or chemical technologies :

- ▶ Minakem®
- ▶ MinaSolve®
- ▶ Pennakem®
- ▶ Pressure Chemical®
- ▶ Minascen®

Serving market leaders as well as emerging players, we support our customers' efforts to improve the quality of life in the global community by:

- ▶ Improving our chemistry and operational excellence today
- ▶ Creating and innovating for tomorrow
- ▶ Driving our enterprises together to **go beyond expectations**



MinaSolve™

Solutions to Protect Your Formulations with Pentiol Green+™

Biosourced odourless
Pentylene Glycol

- ✓ MinaSolve™ Green A
- ✓ MinaSolve™ Green B
- ✓ MinaSolve™ Green C
- ✓ E-Leen Green OR
- ✓ MinaSolve™ Hexam+

MINASOLVE®
BIO-INGREDIENTS FOR YOUR APPLICATIONS

green
solving
attitude.

WWW.MINASOLVE.COM

MinaSolve™ proposes an innovative range of ready to use solutions based on **Pentiol Green +™**, with a strong focus on efficiency, based on preservative boosting and emollient properties.

Bio-based chemistry is penetrating all market segments and is promoted more and more to consumers of final products. Cosmetic and beauty care are industries where this trend is strongly growing and provides challenges to the key players to develop new formulations in line with consumer demands. New formulations mean new ingredients with a stronger sustainable approach for the production of the raw material and the final products. **MinaSolve™ is helping in such achievement by proposing bio-ingredients developed under**

green chemistry principles to cope with market demands and customer focus. **One of the key ingredients** developed for this market segment is **Pentiol Green+™** which has been developed and produced with a proprietary process established by Minasolve's sister company Pennakern, specialized in furfural chemistry. This bio-based ingredient has now proven its versatility in its use in cosmetic formulations and brings multiple properties to the final products.

WWW.MINASOLVE.COM

Characteristics / Comparison

	MinaSolve™ Green A	MinaSolve™ Green B	MinaSolve™ Green C	E-Leen Green OR	MinaSolve™ Hexam+ Hexam+
INCI	Pentylene Glycol, Phenylpropanol	Pentylene Glycol, Aqua, Sodium Benzoate, Benzoic Acid	Pentylene Glycol, Glyceryl Caprylate/ Caprate	Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis (Orange) Peel Extract, Ascorbic Acid, Citric Acid, Lactic Acid	Pentylene Glycol, Water, Hexamidine Diisethionate
pH range of activity	unlimited	3 ▶ 6	4 ▶ 7	3 ▶ 6.5	3 ▶ 6.5
Water solubility	soluble at ≤ 3%	soluble	dispersible	soluble	soluble
ECOCERT/COSMOS	no	approved	approved	approved	no
Preservative free	yes	no	yes	yes	no
"Naturality"	natural origin + nature identical	natural origin + nature identical	100 % natural origin	100 % natural origin - 100% Sustainable (From agro waste)	natural origin + synthetic (eco-process)
Odor	faint, aromatic	odorless or faint	odorless or faint	odorless or faint	odorless or faint
Microbicide effect	yeast/mold/bacteria	yeast/mold/bacteria	yeast/ (mold)/bacteria	yeast/ (mold)/bacteria	yeast/mold/bacteria

Comparison of challenge test results depending on formulation, pH and dosage

pH / %	MinaSolve™ Green A		MinaSolve™ Green B		MinaSolve™ Green C		E-Leen Green OR		MinaSolve™ Hexam+ Hexam+	
	1,5%	2,0%	2,5%	3,0%	2,0%	3,0%	2,0%	3,0%	1,0%	2,0%
4.5	A	●	●	●	●	●	●	●	●	●
5.5	B	A	●	●	●	A	B	A	●	A
6.0	●	●	●	●	●	B	●	●	●	●
6.5	●	●	●	●	●	●	●	A	●	●
7.0	A	●	●	●	●	A	●	●	●	●
8.0	B	A	●	●	●	●	●	●	●	●
4.5	A	●	●	●	●	●	●	●	●	●
5.5	A	●	●	●	●	A	●	●	●	A
7.0	B	A	●	●	●	B	●	●	●	●
8.0	●	A	●	●	●	●	●	●	●	●

A **B** Challenge test result, fulfills criteria A/B of ISO 11930 ● Likely to fulfill criteria A of ISO 11930 ◻ Not suitable for this application