

A leen®5
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	derived-natural, 100 % renewable carbon
NATURALITY INDEX	0.922 (ISO 16128-2)



MINAFIN®
GROUP

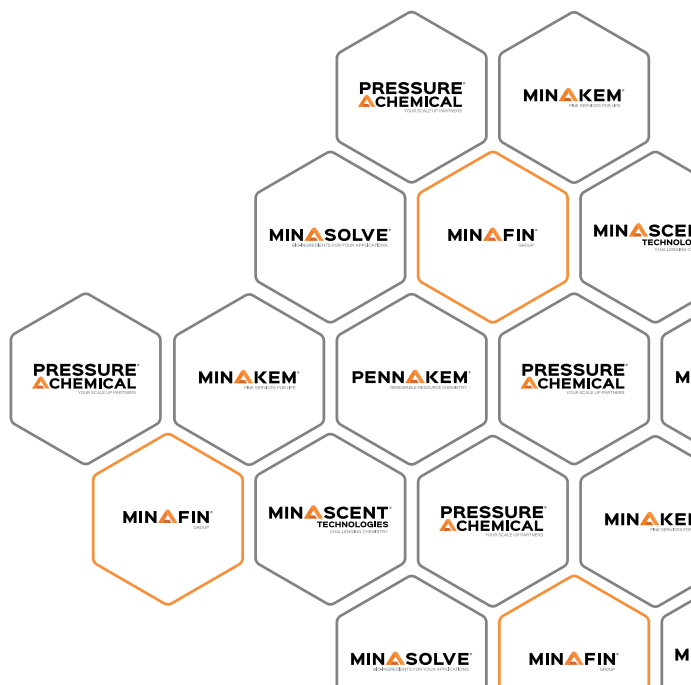
MinaSolve™ is a brand of Minafin® Group

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 A leen®5

Biosourced odourless
Pentylene Glycol

- ✓ E-Leen® Green A
- ✓ E-Leen® Green B
- ✓ E-Leen® Green C
- ✓ E-Leen® Green OR
- ✓ EasySafe Green A
- ✓ EasySafe 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 A-Leen 5. All ingredients have broad-spectrum antimicrobial and long-lasting and skin humectant 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 **A-Leen 5** which has been developed and produced with a proprietary process established by Minasolve's sister company Pennakem, specialized in green chemistry. This bio-based ingredient has now proven its versatility in cosmetic formulations and brings multiple benefits to the final products.

WWW.MINASOLVE.COM

Characteristics / Comparison

	EasySafe Green A	E-Leen® Green A	E-Leen® Green B	E-Leen® Green C	E-Leen® Green OR	EasySafe Hexam+
INCI	Pentylene Glycol, Phenylpropanol	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	unlimited	3 ▶ 6	4 ▶ 7	3 ▶ 6.5	3 ▶ 6.5
Water solubility	soluble at ≤ 3%	soluble at ≤ 3%	soluble	dispersible	soluble	soluble
ECOCERT/COSMOS	no	approved	approved	approved	approved	no
Preservative free	yes	yes	no	yes	yes	no
Naturality Index (ISO 16128-2)	0.692	0.934	0.84	0.932	0.93	0.83
Odor	faint, aromatic	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	yeast/mold/bacteria
Recommended Use Level	1.0 ▶ 3.0%	1.0 ▶ 3.0%	1.0 ▶ 3.0%	1.0 ▶ 3.0%	1.0 ▶ 3.0%	0.2 ▶ 2.0% Max. 1.0% for eye and oral care

The ABC of sustainable protection: Comparison of challenge test results

A-Leen 5 ...	EasySafe Green A Phenylpropanol		E-Leen® Green A Phenylpropanol (nature-derived)		E-Leen® Green B Benzoic Acid / Sodium Benzoate		E-Leen® Green C Glyceryl Caprylate / Caprate		E-Leen® Green OR Citrus Extracts		EasySafe Hexam + Hexamidine Diisethionate		
	1,5%	2,0%	3,0%	2,0%	3,0%	2,0%	3,0%	2,0%	3,0%	2,0%	3,0%	1,0%	2,0%
#1 O/W emulsion	4.5	A	A	A	A	A	A	A	A	A	A	A	A
	5.5	B	A	A	A	A	B	A	A	A	A	A	A
	6.0		A	A		B	A	A	A	A	A	A	A
	6.5		A	A		⊖	A	A	A	B	A	A	A
	7.0	B	A	A		⊖	A	A	A	⊖	⊖	⊖	⊖
#2 Sulfate Free Shampoo	8.0		B	A		⊖	⊖	⊖	⊖	⊖	⊖	⊖	⊖
	4.5	B	A	A		A	A	B	⊖	⊖	⊖	B	A
	5.5	B	A	A		A	A	B	⊖	⊖	⊖	⊖	A
	7.0	B	A	A		⊖	B	B	⊖	⊖	⊖	⊖	⊖
8.0		A	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

The given information is accurate to the best of our knowledge. Customers are advised to perform their own studies on the usefulness of any ingredient for a particular application. Any recommended usage information is only provided as indication, and should not be considered as recommendation to violate of any laws, patents, or official regulations dealing with manufacture, composition, local procedures, product design, or end usage.