Aleen 5

FROM BIOMASS TO COSMETIC

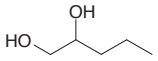
COSMOS APPROVED

NATRUE APPROVED

Biosourced odourless
Pentylene Glycol

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

Specifications and Characteristics

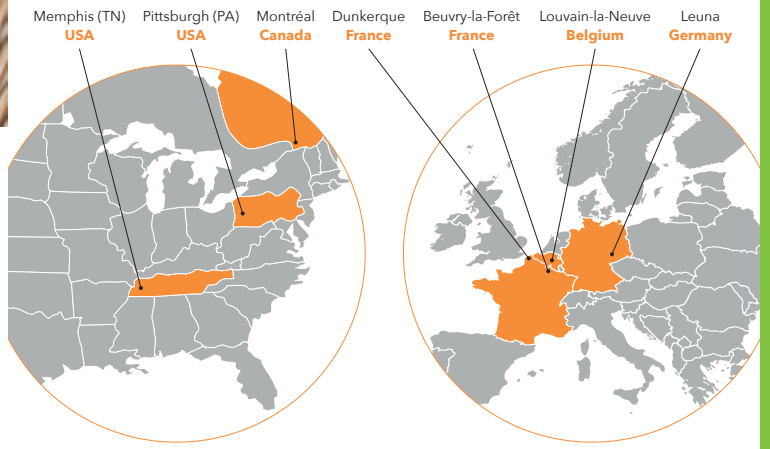
INCI	Pentylene Glycol
CAS REG. N°	5343-92-0
APPEARANCE	Colourless liquid
ODOUR	Odourless
PURITY	Min. 99.0 %
SOLUBILITY	Hydrophilic, readily soluble in water and alcohol
RECOMMENDED PH OF USE	3.0 ▸ 10.0
RECOMMENDED USE LEVEL	0.5 ▸ 5.0 %
REGULATORY STATUS	Globally approved
ORIGIN	**derived-natural, 100 % renewable carbon**
NATURAL ORIGIN INDEX	**1 (ISO 16128)**
CHEMICAL STUCTURE	

MINASOLVE® is an affiliate of MINAFIN® Group

Created in 2004, The Minafin® Group is an expert in Health Chemistry, Green Chemistry and Challenging Chemistry. Activities include industrial subcontracting, development of chemical syntheses and industrial scale-up of custom-made processes as well as proprietary products with high added value for the pharmaceutical, cosmetics, agriculture and high-tech industries. Strong synergies exist between all business units: MINASOLVE, MINAKEM, PENNAKEM, PRESSURE CHEMICAL and MINASCENT.

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**



300 M€ SALES

1050 EMPLOYEES

150 SCIENTISTS

7 PRODUCTION SITES

MINAFIN® GROUP

2023 12. V8.1

Minasolve Solutions to Protect Your Formulations with Aleen 5

Biosourced odourless
Pentylene Glycol

- ***E-Leen Green A***
- ***E-Leen Green B***
- ***E-Leen Green C***

NATRUE APPROVED

COSMOS APPROVED

- ***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 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.

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Specifications and Characteristics

	EasySafe Green A	E-Leen Green A	E-Leen Green B	E-Leen Green C	EasySafe Hexam+
INCI	Pentylene Glycol, Phenylpropanol	Pentylene Glycol, Phenylpropanol	Pentylene Glycol, Aqua, Sodium Benzoate, Benzoic Acid	Pentylene Glycol, Glyceryl Caprylate/Caprate	Pentylene Glycol, Water, Hexamidine Diisethionate
pH range of activity	unlimited	unlimited	3 ▸ 6	4 ▸ 7	3.5 ▸ 6
Water solubility	soluble at ≤ 3%	soluble at ≤ 3%	soluble	dispersible	soluble
ECOCERT/COSMOS	no	approved	approved	approved	no
Listed preservative free	yes	yes	no	yes	no
Natural origin index (ISO 16128)	0.69	1	0.88	1	0.95
Odor	faint, aromatic	faint, aromatic	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
Recommended use level	1.0 ▸ 3.0%	1.0 ▸ 3.0%	1.0 ▸ 3.0% (max 5%)	1.0 ▸ 3.0%	0.2 ▸ 2.0%

Performance in microbial challenge tests

		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		EasySafe Hexam+ Hexamidine Diisethionate	
	pH/%	1,5%	2,0%	3,0%	2,0%	3,0%	2,0%	3,0%	1,0%	2,0%
O/W emulsion	4.5	A	●	●	A	●	A	●	A	●
	5.5		A	●	A	●	A	A	A	●
	6.0		A	●		B		A		A
	6.5		A	●	⊖	⊖		A		
	7.0		A	●	⊖	⊖		B	⊖	⊖
	8.0		A	A	⊖	⊖	⊖	⊖	⊖	⊖
Sulfate Free Shampoo	4.5	B	A	●	A	●		B	B	B
	5.5		A	●	A	●		B		A
	7.0		A	●	⊖	⊖		B	⊖	⊖
	8.0		A	●	⊖	⊖	⊖	⊖	⊖	⊖

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