MINASOLVE®

BIO-INGREDIENTS FOR YOUR APPLICATIONS

green
solving
attitude.

From Biomass to COSMETIC Sustainable Multifunctional Ingredients and Solutions.

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** (INCI name Pentylene Glycol) which has been developed and produced with a proprietary process established by Minasolve®'s sister company Pennakem, 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. This bio-based ingredient, **odourless**, GMO free, first of its kind in the 1,2-alkanediol range, has been awarded the silver award for Green Ingredients at in-cosmetics 2014 in Hamburg.

A particular challenge of today is the cost-effective production of self-preserved cosmetic products for the mass-market. In order to meet this demand, Minasolve offers now three cost-optimized and easy to use solutions: **EasySafe P8**, **EasySafe GC 8** and **EasySafe OC 8**. Each of these ingredients is based on safe, mild and undisputed components, all three of them being effective at low dosage. Together these novel ingredients provide a versatile tool-box to the formulator, helping to meet the latest market expectations in terms of safety and "clean labelling".

MINASOLVE®
BIO-INGREDIENTS FOR YOUR APPLICATIONS

green solving attitude.

Production

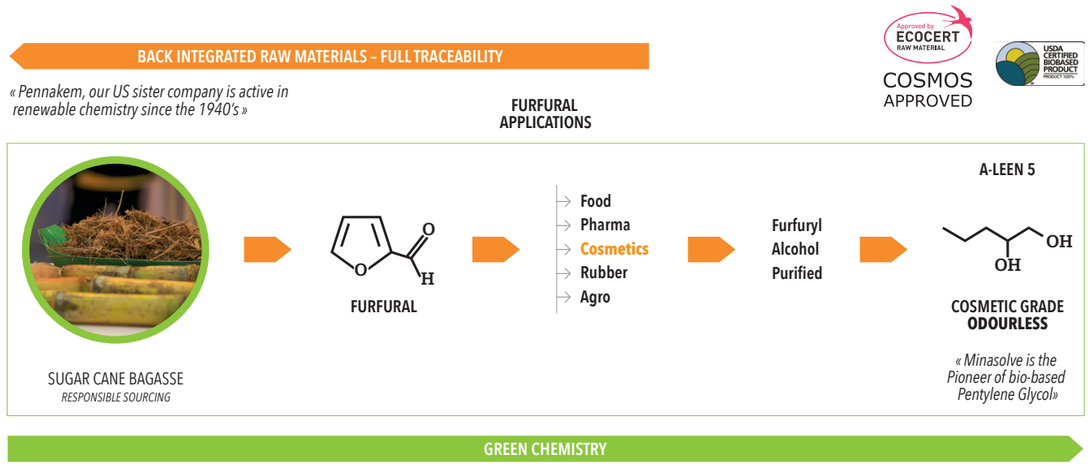
Today's general environmental and human safety concerns, associated with the growing global trend for sustainable production, have led to more and more interest in the development of high value ingredients in accordance with the principles of green chemistry.

Pennakem, which has been active in renewable chemistry since the 1940s, and Minasolve®, a sister company in the Minafin group, have jointly developed a new, efficient and cost effective process to deliver high volumes of the multifunctional compound, bio-based 1,2-pentanediol (INCI name Pentylene Glycol). Minasolve® is marketing this ingredient under the brand name A-Leen 5 for personal care and other applications.

Pennakem has developed a proprietary green manufacturing process to produce **odourless bio-based 1,2-pentanediol** which is based on valorizing the natural waste material sugar cane bagasse and which uses renewable chemistry to create a high quality cosmetic ingredient.

The growing interest of personal care formulators in using this ingredient is confirmed by the growth of new product launches during the past few years. According to Mintel, the number of new products containing pentylene glycol has grown from 1000 in 2010 to 1500-1600 in the last three years. Additionally, the number of new products claiming "no parabens' almost doubled from under 200 in 2010 to nearly 400 last year.

The anti-microbial activity profile of A-Leen 5 is equivalent to its petrochemical-based analogues. The suitability of A-Leen 5 as an anti-microbial protection agent for typical cosmetic products has been demonstrated in microbial challenge tests in accordance to ISO 11930 standards.



CONCLUSIONS

The development of an efficient, green, and cost effective process to produce large volumes of bio-based 1,2-pentanediol results from the trend towards sustainable growth in many different global markets. A key multifunctional ingredient for personal care and cosmetic products has been developed in the quest for safer preservation and sensory improvement systems and to support the growing market demand for natural ingredients. A-Leen 5 answers customers' expectations for better environmental respect and social responsibility. It can easily be used to substitute petrochemical-based additives in current cosmetic products and consequently easily improves the natural index of the product. This innovative achievement won the silver Green Ingredients Award at In-Cosmetics 2014.

Green Extraction Solvent

Bio-based cosmetic formulations are becoming increasingly popular. The most commonly used natural ingredients are extracts from plant materials. A key decision in the production of truly sustainable extracts is the choice of the extraction solvent.

A-Leen 5 (INCI name Pentylene Glycol) is a non-volatile hydrophilic/amphiphilic solvent. It can be favorably used as a (co)extraction agent and solvent for herbal ingredients:

- **The amphiphilic nature** of A-Leen 5 ensures that both polar and non-polar constituents are extracted from plant materials and **stabilized inside the extract**. The extraction power of A-Leen 5 is comparable to that of ethanol *(Figure A/B)*.
- A-Leen 5 **can be easily combined with water as extraction agent**, which lowers the viscosity and **enhances the cost effectiveness**. The solubilization properties of A-Leen 5 are largely maintained, even at higher levels of water.
- A-Leen 5 has a relatively **low volatility** with a boiling point of 206 °C. Extractions at high temperature can be carried out under atmospheric pressure.
- **The attractive skin conditioning effects** of A-Leen 5 make it possible to add the obtained extracts directly into cosmetic formulations. It is not necessary anymore to remove any extraction solvent that is possibly not skin friendly. **Energy-intensive solvent exchanges can be omitted**.
- Thanks to the antimicrobial activity of A-Leen 5, extracts containing at least 5% of A-Leen 5 **are self-preserved**. Microorganisms potentially present on vegetal materials are effectively killed, and the extracts are well protected against a re-infestation by microbes.

Figure A

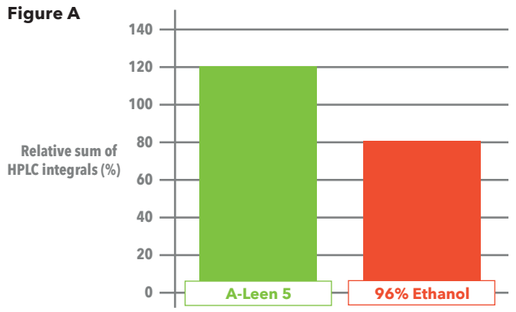


Figure B

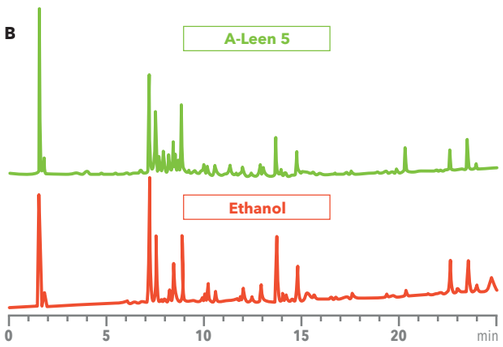


Figure A highlights the application of A-Leen 5 in comparison with Ethanol as solvent for the extraction of peppermint leaves. For each extraction, 10 g of plant materials were suspended in 50 g of extraction solvent. The mixtures were heated and stirred at 75-80°C for 15 minutes. After cooling, the solid constituents were filtered off and the filtrates were analyzed by HPLC. In conclusion, A-Leen 5 and Ethanol showed comparable performances as extraction solvents.

Figure B: Qualitative and semi-quantitative HPLC-analysis (UV detection at 254 nm) of Peppermint leave extracts obtained by using A-Leen 5 and Ethanol as extraction agents.

CONCLUSION : A-Leen 5 is an innovative green extraction solvent that enables to increase the Natural Origin Index of cosmetic formulations.

A-Leen Aroma-3 & E-Leen Green A

Two universal solutions for natural antimicrobial protection over a large pH range.

There is a general and steadily growing demand from consumers for safe, mild and nature-based cosmetics. These products should be self-preserved, as well as free of harsh preservatives and allergens. Minasolve offers two novel solutions to protect these kinds of modern formulations:

Aleen® Aroma-3

INCI: Phenylpropanol

A-Leen Aroma-3 is a nature-derived version of Phenylpropanol, a fragrance component naturally occurring in flowers and fruits – such as Hyacinths, Narcissus and ripe strawberries.

A-Leen Aroma-3 is a mild perfuming agent. It brings a comfortable, balsamic and spicy oriental note to personal care products.

A-Leen Aroma-3 also shows a broad spectrum anti-microbial activity that helps to protect all kinds of cosmetic products against microbial degradation. This activity is largely pH-independent.

A-Leen Aroma-3 is produced starting from Cassia essential oil, which is traditionally obtained by steam distillation from the leaves and branches of the Chinese cinnamon tree *Cinnamomum cassia*. The full manufacturing process of A-Leen Aroma-3 is in accordance with the principles of "green-chemistry" and complies with the standards COSMOS and NATRUE.

A-Leen Aroma-3 is free of fragrance allergens and free of listed preservatives.

Eleen® Green A

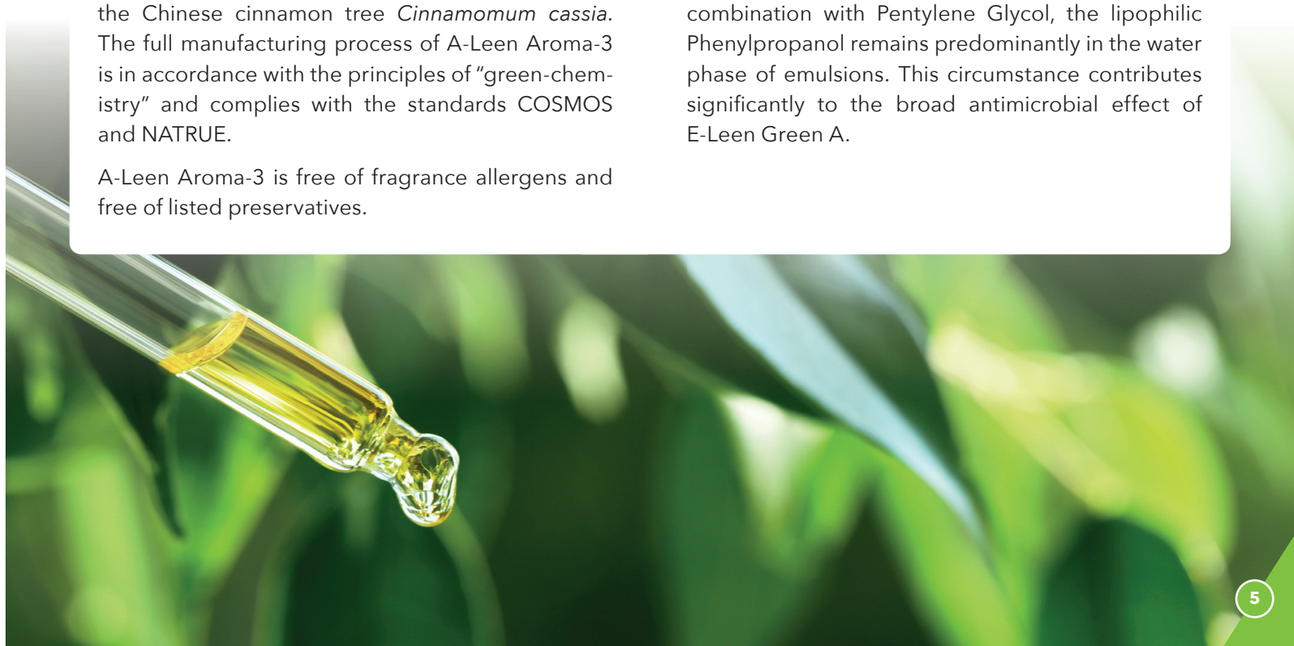
INCI: Pentylene Glycol, Phenylpropanol

E-Leen Green A is a novel, synergistic combination of nature-based Pentylene Glycol (A-Leen 5) and nature-based Phenylpropanol. The mixture represents a cost-effective solution to obtain completely self-preserving cosmetic products.

Both constituents of E-Leen Green A are produced by means of "green chemistry" and thus meet the requirements of the natural cosmetics standards COSMOS and NATRUE.

E-Leen Green A is skin-moisturizing, skin conditioning and mildly perfuming. Its antimicrobial effect is largely independent of the pH value.

E-Leen Green A is water-soluble up to 3% and therefore suitable for clear, water-based products. By combination with Pentylene Glycol, the lipophilic Phenylpropanol remains predominantly in the water phase of emulsions. This circumstance contributes significantly to the broad antimicrobial effect of E-Leen Green A.



EasySafe P8 / GC 8 / OC 8

Three optimized and cost-effective solutions for alternative formula protection

Safety is key in the design of consumer products, regardless of their sales price. Minasolve® therefore offers three new solutions for alternative formula protection. They are based on the cost-effective multifunctional ingredient Octiol (INCI name Caprylyl Glycol). All three solutions are temperature-stable and easy to use liquids.

EasySafe P8

The alternative for ultimate performance

INCI: Caprylyl Glycol, Phenylpropanol

EasySafe P8 **provides broad-spectrum protection, also at high pH-values**. It combines two multifunctional ingredients: Caprylyl Glycol, a wellknown **skin humectant**, and Phenylpropanol, an **aroma compound naturally occurring in flowers and fruits**. EasySafe P8 is also well suitable for clear, water-based products.

EasySafe GC 8

Mild, safe and versatile protection

INCI: Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin

EasySafe GC 8 is designed to protect **mild and low-odour** formulations. It is based on Glyceryl Caprylates and Caprates **derived from vegetable oils**. These mild skin care agents have refatting and co-emulsifying properties. EasySafe GC 8 has a broad-spectrum antimicrobial effect. It can also help to **avoid thinning effects** which may be caused by Caprylyl Glycol in some formulations.

EasySafe OC 8

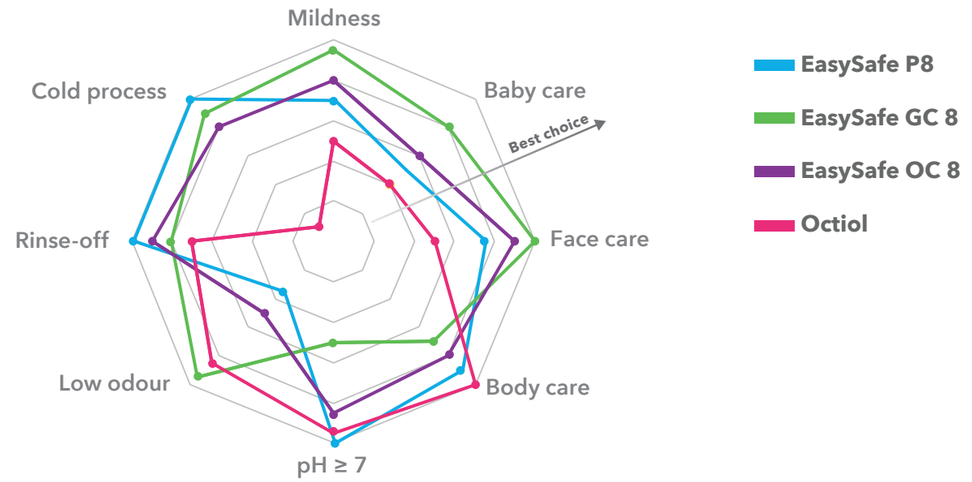
The eco-friendly preservative solution

INCI: Caprylyl Glycol, Phenylpropanol, o-Cymen-5-ol

EasySafe OC 8 is an **eco-friendly alternative to out-of-time preservatives**, such as Triclosan or Triclocarban. EasySafe OC 8 combines three mild ingredients, resulting in a powerful antimicrobial and anti-oxidant activity. Among them is the **skin-friendly preservative o-Cymen-5-ol**, an isomer of thymol – the active molecule of thyme. EasySafe OC 8 is of low odour and free of halogencontaining compounds. The antimicrobial effect of EasySafe OC 8 is **largely pH-independent**.

EasySafe Selector

In order to simplify the choice of the best ingredient for your project, we have created a simple selection tool. It provides a first recommendation for the most appropriate EasySafe candidate versus pure Octiol, based on specific applications and key criteria.



Our Product Portfolio

In 2019, Minasolve will pursue its goal: becoming your key partner for Green Solutions. In order to reach this objective, we are pleased to propose the following range of products

- A-Leen — Pure Natural Ingredients, COSMOS
- E-Leen — Synergistic Green Solutions, COSMOS
- EasySafe — Optimized Performance Solutions
- Boosters/ Preservatives — Multifunctional Ingredients
- Actives — Cosmetic Active Ingredients

Formula Protection

A-Leen, E-Leen, EasySafe and Boosters/Preservatives

	INCI	ORIGIN	ECOCERT APPROVED	COSMOS APPROVED	NATRUE APPROVED	NATURAL ORIGIN INDEX*	REGULATORY STATUS	DESCRIPTION	FORM/ODOUR	ANTIMICROBIAL ACTIVITY	pH RANGE	RECOMMENDED USE LEVEL	FORMULATION GUIDELINES
A-Leen: Pure Natural Ingredients, COSMOS and NATRUE approved													
A-Leen 5	Pentylene Glycol	Derived-natural	✓	✓	✓	1	Europe, USA, Canada, Australia, China, Japan, Korea	Derived-natural emollient & moisturizer. Antimicrobial. Extraction solvent & solubilizer. Excipient for gelling agents.	Clear, colourless liquid Odourless	Bacteria, Yeast and Mold (Booster)	unlimited	0.5 ▸ 5.0%	For optimum efficacy of preservation, it should be added to emulsions at the post-emulsification stage.
A-Leen Aroma-3	Phenylpropanol	Derived-natural		✓	✓	1	Europe, USA, Canada, Australia, China, Japan, Korea	Nature-derived perfuming agent with pH-independent antimicrobial effect. Free of listed preservatives.	Clear, colourless liquid Characteristic odour	Bacteria, Yeast and Mold (Booster)	unlimited	0.5 ▸ 1.0%	Soluble in water up to 0.8%, miscible with alcohols and polar oils; should be added to emulsions at the post-emulsification stage for optimum anti-microbial efficacy.
E-Leen: Synergistic Green Solutions, COSMOS approved													
E-Leen Green A	Pentylene Glycol, Phenylpropanol	Derived-natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Non ionic, free of listed preservatives and nature-derived antimicrobial blend. Contains A-Leen 5 and natural origin Phenylpropanol.	Clear, colourless liquid / Sweet, floral	Bacteria, Yeast and Mold	unlimited	1.0 ▸ 3.0%	Water soluble up to 3%. Suitable for cold and hot processes
PATENTED **E-Leen Green B**	Pentylene Glycol, Water, Sodium Benzoate, Benzoic Acid	Derived-natural	✓	✓		0,88	Europe, USA, Canada, Australia, China, Japan, Korea	Anionic broad spectrum antimicrobial, ideal for low pH formulations. Contains A-Leen 5	Clear, colourless liquid / Odourless or faint	Bacteria, Yeast and Mold	3.0 ▸ 6.0	1.0 ▸ 3.0% (max. 5%)	Water soluble. Suitable for cold and hot processes. The lower the pH, the stronger the activity.
E-Leen Green C	Pentylene Glycol, Glyceryl Caprylate/Caprate	Derived-natural	✓	✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Non ionic, free of listed preservatives antimicrobial blend. 100% nature-derived. Contains A-Leen 5.	Clear, colourless liquid / Odourless or faint	Bacteria, Yeast, Fungistatic against Mold	4.0 ▸ 7.0	1.0 ▸ 3.0%	Dispersible in water. Suitable for cold and hot processes.
E-Leen Green OR	Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis Peel Extract, Ascorbic Acid, Citric Acid, Lactic Acid	Derived-natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Non ionic, multifunctional ingredient with antimicrobial and antioxidant properties. Contains A-Leen 5 & Citrus extracts. Free of listed preservatives, water-soluble and 100% nature-derived.	Clear, yellow liquid / Odourless or faint	Bacteria, Yeast and Mold	3.0 ▸ 6.5	1.0 ▸ 3.0%	Water soluble. Suitable for cold and hot processes. Keep product pH <= 6.5
E-Leen 8 NEW 2020	Caprylyl Glycol, Glycerin, Water	Derived-natural		✓	✓	1	Europe, USA, Canada, Australia, China, Japan, Korea	Bio-sourced and easy-to-use liquid version of Caprylyl Glycol, for self-preserving formulations, effective at any pH, easy to use liquid	Clear, colourless liquid / faint odour	Bacteria, Yeast and Mold	unlimited	0.5 ▸ 2.0%	Stable liquid at >=15°C, soluble in water up to 1%, can be added at any stage of the formulation, preferably to the aqueous phase or after emulsification.
E-Leen GC 8 NEW 2020	Caprylyl Glycol (and) Glyceryl Caprylate/Caprate (and) Glycerin, water	Derived-natural		✓	✓	1	Europe, USA, Canada, Australia, China, Japan, Korea	Nature-derived antimicrobial blend from bio-based Caprylyl Glycol - efficient, non-ionic and free of listed preservatives, for mild and low odour formulations	Clear, colourless or slightly yellow liquid / Odourless or faint	Bacteria, Yeast and Mold	4.0 ▸ 7.0	0.75 ▸ 2.0%	Dispersible in water, can be added to the aquous phase or after emulsification. The pH should be maintained at 4-7.
E-Leen P8 NEW 2020	Caprylyl Glycol, Phenylpropanol, water	Derived-natural		✓	✓	1	Europe, USA, Canada, Australia, China, Japan, Korea	Nature-derived and cost-effective antimicrobial blend from bio-based Caprylyl Glycol, non-ionic and free of listed preservatives, suitable also for high pH, easy to use	Clear, colourless or slightly coloured liquid/ faint aromatic odour	Bacteria, Yeast and Mold	unlimited	0.5 ▸ 2.0%	Soluble in water up to 1%, Can be added at any stage of the formulation, preferably to the aqueous phase or after emulsification
EasySafe: Optimized Performance Solutions													
EasySafe Green A	Pentylene Glycol, Phenylpropanol	Derived-natural				0,69	Europe, USA, Canada, Australia, China, Japan, Korea	Non ionic, free of listed preservatives antimicrobial blend. Contains A-Leen 5 and aromatic compound.	Clear, colourless liquid / Sweet, floral	Bacteria, Yeast and Mold	unlimited	1.0 ▸ 3.0%	Water soluble up to 3%. Suitable for cold and hot processes.
PATENTED **EasySafe Hexam+**	Pentylene Glycol, Water, Hexamidine Diisethionate	Derived-Natural				0,95	Europe, USA, Canada, Australia, China, Korea	Boosted liquid form of MinaSolve Hexam with A-Leen 5. Cationic antimicrobial blend with skin moisturising properties. For sensitive skin & baby applications.	Clear, colourless liquid / Odourless or faint	Bacteria, Yeast and Mold	3.5 ▸ 6.0	0.2 ▸ 2%	Water soluble. Suitable for cold and hot processes. Can be added at any stage of the formulation, as long as the product is kept at pH 3.5 ▸ 6.0.
EasySafe GC 8 NEW 2019	Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin	Derived-natural				0,60	Europe, USA, Canada, Australia, China, Japan, Korea	Nature-derived antimicrobial blend - efficient, non-ionic and free of listed preservatives, for mild and low odour formulations	Clear, colourless or slightly yellow liquid / Odourless or faint	Bacteria, Yeast and Mold	4.0 ▸ 7.0	0.75 ▸ 2.0%	Dispersible in water, can be added to the aqueous phase or after emulsification. The pH should be maintained at 4-7
EasySafe OC 8 NEW 2019	Caprylyl Glycol, Phenylpropanol, o-Cymen-5-ol	Non-Natural				0	Europe, USA, Canada, Australia, China, Japan, Korea	Preservative blend, boosting the effect of o-Cymen-5-ol, easy to use liquid, bio-degradable alternative to Triclosan	Clear, colourless liquid/ faint aromatic odour	Bacteria, Yeast and Mold	3.0 ▸ 8.0	0.5 ▸ max. 1.5%	Can be added to aqueous phases containing surfactants, or at the end, e.g. after emulsification
EasySafe P8 NEW 2019	Caprylyl Glycol, Phenylpropanol	Non-Natural				0	Europe, USA, Canada, Australia, China, Japan, Korea	Cost-effective antimicrobial blend based on Octiol, non-ionic and free of listed preservatives, suitable also for high pH, easy to use	Clear, colourless liquid/ faint aromatic odour	Bacteria, Yeast and Mold	unlimited	0.5 ▸ 2.0%	Soluble in water up to 1%. Can be added at any stage of the formulation, preferably to the aqueous phase or after emulsification
Booster/Preservatives, Multifunctional Ingredients													
Caprocine	Capryloyl Glycine	Derived-natural				0,80	Europe, USA, Canada, Australia, China, Japan, Korea	Anionic multifunctional ingredient with antimicrobial properties.	White crystalline powder	Bacteria and Mold (weak on C. albicans)	3.0 ▸ 7.0	0.5 ▸ 2.0%	Dissolve in hot water or in cold alkaline water (pH > 7.0).
MinaSolve CapEasy	Water, Capryloyl Glycine, Sodium Bicarbonate	Derived-natural				0,80	Europe, USA, Canada, Australia, China, Japan, Korea	Self preserved, aqueous solution of Caprocine (~30% a.i.). Multifunctional with antimicrobial properties.	Clear, colourless liquid / Odourlessor faint	Bacteria and Mold (weak on C. albicans)	3.0 ▸ 7.0	1.5 ▸ 7.0%	Can be added at any stage of the formulation. No heating, premixing, or pH-adjustment is needed for dissolution.
MinaSolve Hexam	Hexamidine Diisethionate	Non-Natural				0	Europe, USA, Canada, Australia, China, Korea	Cationic, mild antimicrobial & antiseptic. Recommended for sensitive skin & suitable for baby applications. ECO-IMPROVED PROCESS	White or slightly yellow powder	Bacteria, Yeast and Mold	3.5 ▸ 6.0	0.01 ▸ 0.1%	Dissolve into the water phase, or make a premix in water or a diol. Keep the pH of the product at 3.5 ▸ 6.0.

* ISO 16128, calculation based on renewable carbon

Quick Decision Guide

What is the best Minasolve product to choose for your formulation's protection?

Thanks to this quick decision guide, it's easy to identify the perfect candidate according to the galenic form of your product, the pH range of your formulation, the origin of our solutions and your internal priorities.

Don't hesitate to contact us to discuss your specific project.

YOUR CHALLENGE, OUR SOLUTIONS

	YOUR FORMULATIONS / MINASOLVE SOLUTIONS	EMULSIONS: 0/W	EMULSIONS: W/O	SINGLE PHASE PRODUCTS: WATER + HIGH AMOUNT OF SURFACTANT/SOLUBILIZER (E.G. SHOWER GEL, SHAMPOO)	SINGLE PHASE PRODUCTS: WATER + LOW AMOUNT OF SURFACTANT/SOLUBILIZER (E.G. MICELLAR WATER)	SINGLE PHASE PRODUCTS: WET WIPES	pH RANGE	CHARACTERISTICS: PALM-OIL FREE	CHARACTERISTICS: LISTED PRESERVATIVE-FREE [2]
PURE NATURAL PRODUCT	A-Leen 5	●	●	●	●	○	A-Leen 5	✓	✓
	A-Leen Aroma-3	●	○	○	●		A-Leen Aroma-3	✓	✓
HYDROPHILIC/MULTIFUNCTIONAL A-LEEN 5-BASED BLENDS	E-Leen Green A	●	●	●	●	●	E-Leen Green A	✓	✓
	E-Leen Green B	●	●	●	●	●	E-Leen Green B	✓	
	E-Leen Green C	●	○	○		○	E-Leen Green C		✓
	E-Leen Green OR	●	○		●		E-Leen Green OR	✓	✓
	EasySafe Hexam +	●	●	●	●	●	EasySafe Hexam +	✓	
	EasySafe Green A	●	●	●	●	●	EasySafe Green A	✓	✓
LIPOPHILIC / POWERFUL A-LEEN 8- OR OCTIOL-BASED BLENDS	E-Leen 8	●	○	○	●	●	E-Leen 8		✓
	E-Leen P8	●	○	○	●	●	E-Leen P8		✓
	E-Leen GC 8	●		○		○	E-Leen GC 8		✓
	EasySafe P8	●	○	○	●	●	EasySafe P8	✓	✓
	EasySafe GC 8	●		○		○	EasySafe GC 8		✓
	EasySafe OC 8	●	○	○	●(1)	●(1)	EasySafe OC 8	✓	
BOOSTER/ PRESERVATIVES	MinaSolve Hexam	●	●	●	●		MinaSolve Hexam	✓	
	Caprocine	●	●	●	●		Caprocine		✓
	MinaSolve CapEasy	●	●	●	●		MinaSolve CapEasy		✓

pH RANGE: 3.0 3.5 4.0 6.0 6.5 7.0 8.0 10.0

● : RECOMMENDED ○ : POSSIBLE, TO BE CHECKED INDIVIDUALLY

COSMOS APPROVED DERIVED NATURAL NON-NATURAL

(1) the concentration of EasySafe OC 8 should be kept below 0.8% to avoid any crystallization of o-Cymen-5-ol

(2) according to Annex V of the Cosmetic Regulation (EC) N° 1223/2009

E-Leen Selector

Minasolve has developped a range of clever mixtures based on our bio-based Pentylene Glycol (A-Leen 5) in order to provide ready to use, otpimized and highly efficient solutions.

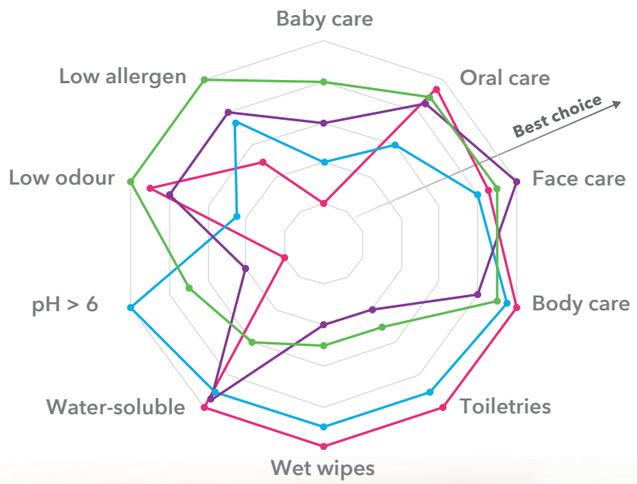
Synergies with Minasolve Phenylpropanol (A-Leen Aroma-3), unique extracts of citrus and other widely used solutions, position this range as a key of success for your future development.

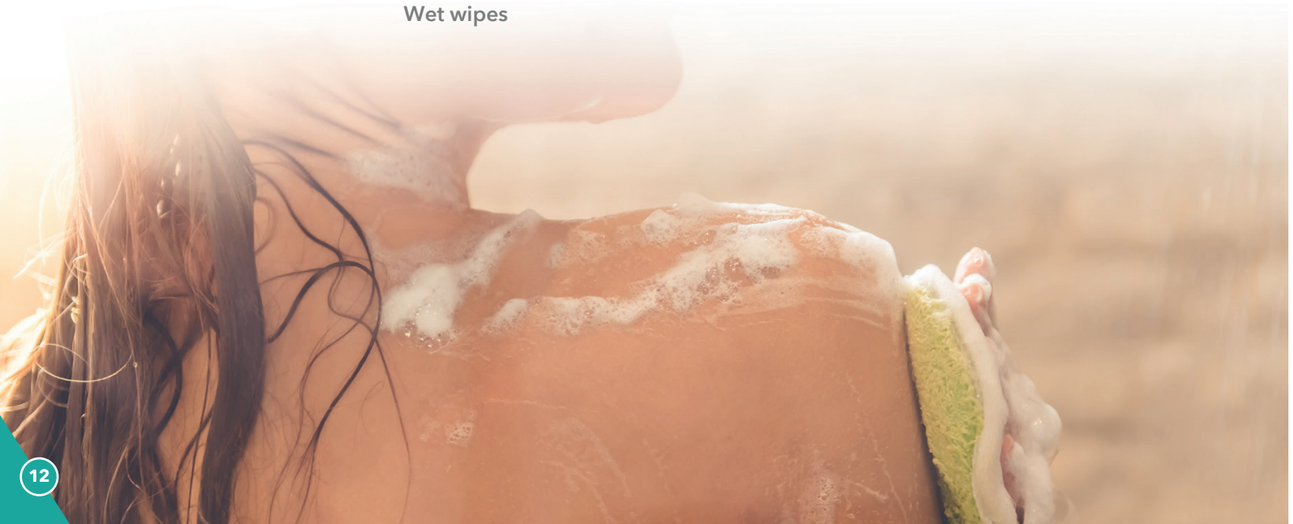
Comparison of blends based on A-Leen 5 (Pentylene Glycol):

E-Leen Green A	Pentylene Glycol, Phenylpropanol
E-Leen Green B	Pentylene Glycol, Water, Sodium Benzoate, Benzoic Acid
E-Leen Green C	Pentylene Glycol, Glyceryl Caprylate/Caprate
E-Leen Green OR	Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis (Orange) Peel Extract

In order to select the appropriate blend, you can find below a tool, the E-Leen Selector.

Depending on your development project or key criteria you can choose the best candidate which fits your needs or contraints.





Notes

The given information is accurate to the best of our knowledge. Buyers are advised to make their own studies on the usefulness of any product for a particular application or purpose. Recommended usage information is only provided as indication, and should not be considered as recommendations to use the products in violation of any patents, intellectual property rights, laws, or regulations relating, but not limited to, manufacture, composition, product design or end usage.

Active Ingredients

For your skin care, hair care, make-up & toiletry products, to treat, purify, condition, soothe or refresh !

	INCI	ORIGIN	ECOCERT APPROVED	COSMOS APPROVED	NATRUE APPROVED	NATURAL ORIGIN INDEX*	REGULATORY STATUS	DESCRIPTION	FORM/ODOUR	pH RANGE	RECOMMENDED USE LEVEL	FORMULATION GUIDELINES	ANTIOXIDANT	ANTI-INFLAMMATORY	ANTI-SEBUM	DEO	LIGHTENING	ANTI-DANDRUFF	ANTI-AGE	COOLING
ACTIVES																				
Caprocine	Capryloyl Glycine	Derived Natural				0,80	Europe, USA, Canada, Australia, China, Japan, Korea	Anionic multifunctional ingredient with antimicrobial properties.	White crystalline powder	3.0 ▸ 7.0	0.5 ▸ 2.0%	Dissolve in hot water or in cold alkaline water (pH > 7.0).			✓	✓		✓		
MinaSolve CapEasy	Water, Capryloyl Glycine, Sodium Bicarbonate	Derived Natural				0,80	Europe, USA, Canada, Australia, China, Japan, Korea	Self preserved, aqueous solution of Caprocine (~30% a.i.). Multifunctional with antimicrobial properties.	Clear, colourless liquid / Odourless or faint	3.0 ▸ 7.0	1.5 ▸ 7.0%	Can be added at any stage of the formulation. No heating, premixing, or pH-adjustment is needed for dissolution.			✓	✓		✓		
E-Leen Green OR	Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis Peel Extract	Derived Natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Non ionic, multifunctional ingredient with antimicrobial and antioxidant properties. Contains A-Leen 5 & Citrus extracts. free of listed preservatives, water-soluble and 100% nature-derived.	Clear, yellow liquid / Odourless or faint	3.0 ▸ 6.5	1.0 ▸ 3.0%	Water soluble. Suitable for cold and hot processes. Keep product pH <= 6.5	✓							
Fresh'in	Methyl Diisopropyl Propionamide	Non-Natural				0	Europe, USA, Canada, Australia, China, Japan, Korea	Refreshing agent	White crystalline powder / Fresh odour	Unlimited	0.04 ▸ 1.5% (2)	Add to the oil phase of the emulsion or solubilise in a diol or alcohol.								✓
PATENTED **Fresh'in Green+**	Pentylene Glycol, Methyl Diisopropyl Propionamide	Derived Natural				0,55**	Europe, USA, Canada, Australia, China, Japan, Korea	Refreshing agent, easy to use liquid form	Colourless liquid / Fresh odour	Unlimited	0.1 ▸ 2.5% (3)	Add at any stage of the formulation, soluble/ dispersible in water.								✓
MinaSolve Hexam	Hexamidine Diisethionate	Non-natural				0	Europe, USA, Canada, Australia, China, Korea	Cationic, mild antimicrobial & antiseptic. Recommended for sensitive skin & suitable for baby applications. ECO-IMPROVED PROCESS	White or slightly yellow powder	3.5 ▸ 6.0	0.01 ▸ 0.1%	Dissolve into the water phase, or make a premix in water or a diol. Keep the pH of the product at 3.5- 6.0.						✓		
EasySafe Hexam+	Pentylene Glycol, Water, Hexamidine Diisethionate	Derived Natural				0.95	Europe, USA, Canada, Australia, China, Korea	Boosted liquid form of MinaSolve Hexam with A-Leen 5. Cationic antimicrobial blend with skin moisturising properties. For sensitive skin & baby applications	Clear, colourless liquid / Odourless or faint	3.5 ▸ 6.0	0.2 ▸ 2.0%	Water soluble. Suitable for cold and hot processes. Can be added at any stage of the formulation, as long as the product is kept at pH 3.5 ▸ 6.0						✓	-	
Resve	Resveratrol	Natural (Japanese knotweed / min. 98%)		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Multifunctional ingredient	Off-white to beige powder	3.0 ▸ 7.0	0,1 ▸ 1.0%	Can be added to the water or oil phase, preferably under hot conditions and before emulsification. In case of solubility issues, a premix with an alkanediol is recommended.	✓	✓	✓		✓		✓	

(1) Quasi-drug registration required

(2) Max recommended use level for a leave-on body application: 0.04%

(3) Max recommended use level for a leave-on body application: 0.1%

* ISO 16128, calculation based on renewable carbon

** Based on molecular mass

Stabilized Hydrolats with Bio-based Diols

Hydra-Leen

Eco-responsibility is at the heart of Minasolve's global strategy. Our mission is to continuously offer innovative products while ensuring respect for people and the environment.

Hydra-Leen is our range of storage stable hydrolats and represents an ideal solution for the perfuming of natural cosmetic formulations.

	PLANT PART	INCI	ORIGIN	ECOCERT APPROVED	COSMOS APPROVED	NATRUE APPROVED	NATURAL ORIGIN INDEX*	REGULATORY STATUS	FORM/ODOUR	FORMULATION GUIDELINES	HAIR CARE: TONIC	HAIR CARE: SHINE	HAIR CARE: PURIFYING	HAIR CARE: CALMING	HAIR CARE: LICE REPELLENT	SKIN CARE: PURIFYING	SKIN CARE: TONIC	SKIN CARE: CALMING	SKIN CARE: ANTISEPTIC	SKIN CARE: RADIANCE	SKIN CARE: ANTIOXIDANT	SKIN CARE: COOLING	SKIN TYPE: OILY SKIN	SKIN TYPE: DULL SKIN	SKIN TYPE: SENSITIVE SKIN	SKIN TYPE: PROBLEM SKIN	SKIN TYPE: MATURE SKIN
Hydra-Leen: Stabilized hydrolats, the Natural Fragrance																											
Hydra-Leen 8 Cedar **CEDRUS ATLANTICA** 	Bark	Cedrus Atlantica Bark Water (and) Caprylyl Glycol (and) Glycerin	Derived Natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Clear, colourless or slightly coloured liquid, pleasant and characteristic odour	Soluble in water, can be used up to 100% for the perfuming of natural cosmetic formulation. Preferably added at the end of the formulation at room temperature.	✓	✓	✓	✓	✓	✓	✓	✓					✓✓	✓	✓	✓	✓
Hydra-Leen 8 Neroli **CITRUS AURANTIUM** 	Flower bud	Citrus Aurantium Amara (Bitter Orange) Flower Water (and) Caprylyl Glycol (and) Glycerin	Derived Natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Clear, light yellow liquid, pleasant and characteristic odour	Soluble in water, can be used up to 100% for the perfuming of natural cosmetic formulation. Preferably added at the end of the formulation at room temperature.								✓	✓	✓			✓✓	✓✓	✓✓	✓✓	✓
Hydra-Leen 8 Rose **ROSA DAMASCENA** 	Petal and Flower	Rosa Damascena Flower Water (and) Caprylyl Glycol (and) Glycerin	Derived Natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Clear, colourless or slightly coloured liquid, pleasant and characteristic odour	Soluble in water, can be used up to 100% for the perfuming of natural cosmetic formulation. Preferably added at the end of the formulation at room temperature.							✓	✓			✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓
Hydra-Leen 5 Rose **ROSA DAMASCENA** 	Petal and Flower	Rosa Damscena Flower Water (and) Pentylene Glycol	Derived Natural		✓		1	Europe, USA, Canada, Australia, China, Japan, Korea	Clear, colourless or slightly coloured liquid, pleasant and characteristic odour	Soluble in water, can be used up to 100% for the perfuming of natural cosmetic formulation. Preferably added at the end of the formulation at room temperature.							✓	✓			✓	✓	✓✓	✓✓	✓✓	✓✓	✓✓

* ISO 16128, calculation based on renewable carbon

MINASOLVE® Solutions

Formulation Lab

In September 2020 Minasolve established a Formulation Lab in Belgium to assist our customers and distributors in their day-to-day activities. Customer and distributor training will be organized via the new Formulation Academy.

MINASOLVE® social commitment through our partnership with work-adapted companies

eta ENGHIEN
ENTREPRISE DE TRAVAIL ADAPTÉ

- MINASOLVE® gives great importance to social commitment through its support of companies that employ disabled workers.
- MINASOLVE® has subcontracted the filling, labelling, and packaging of samples to ETA d'Enghien.
- The mission of ETA d'Enghien is to offer less able-bodied people (90% of the +100 employees) long-term employment opportunities in a work environment adapted to their needs.

BLENDAMIX

BLENDAMIX is a company that's helps producers in the functional foods market optimize their operations by supplying ready-to-use, custom made powder premixes.

BLENDAMIX delivers homogeneous premixes of constant properties and can also manage the supply chain operations through sourcing, qualification, and quality control of the individual ingredients.

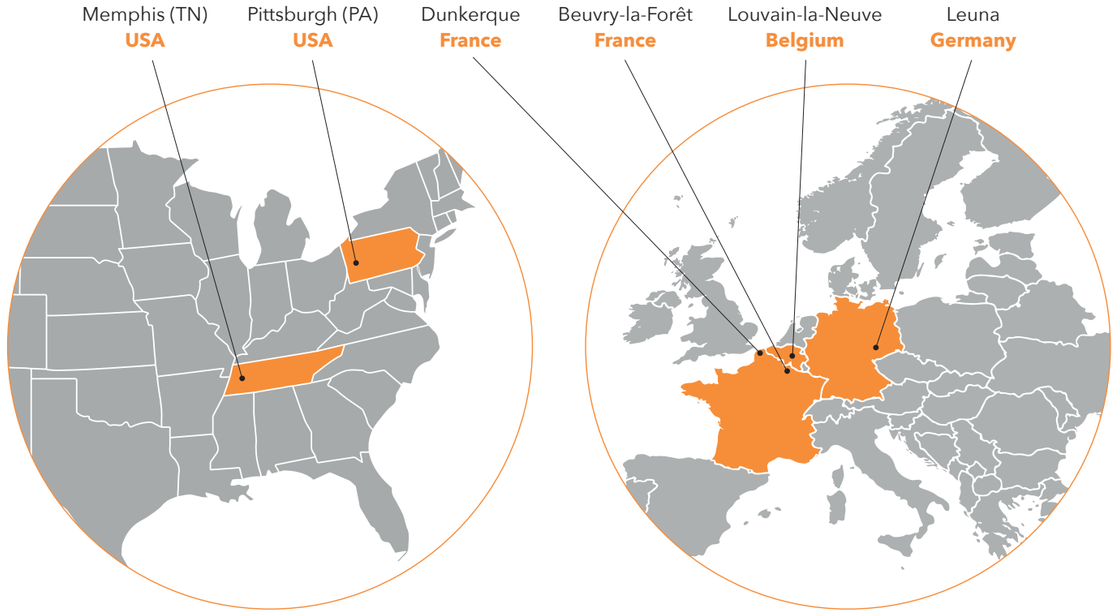
BLENDAMIX operates under the highest quality standards, supported by the expertise of its sister companies within the MINAFIN Group.

MINASOLVE® is an affiliate of MINAFIN® Group

Created in 2004, The **MINAFIN® Group**, specializes in fine chemistry for the life sciences and high tech industries. 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, MINAGRO, PENNAKEM, PRESSURE CHEMICALS, MINASCENT, EcoXtract and BLENDAMIX.

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**



243 M€ SALES

900 EMPLOYEES

91 SCIENTISTS

6 PRODUCTION SITES

MINAFIN® GROUP

MINASOLVE®

BIO-INGREDIENTS FOR YOUR APPLICATIONS

145, chemin des Lilas
59310 Beuvry-La-Forêt
France

8, rue Fond Jean Paques,
B-1435 Mont-Saint-Guibert
Belgium

Phone: +32 10 238 460
e-mail: contact@minasolve.com

www.minasolve.com

2021 09. V5.1