

# PENTAPHARM SERVICE CENTER COSMETICS

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## Formulation Guidelines for SYN<sup>®</sup>-COLL

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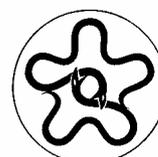
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Pentapharm Ltd, Engelgasse 109, P.O. Box, CH-4002 Basel / Switzerland  
Phone : +41-61-706 48 48, Fax : +41-61-319 96 19, <http://www.pentapharm.com>



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## SUMMARY

SYN<sup>®</sup>-COLL was tested with different groups of raw materials like preservatives, hydrocolloids, sunscreens, commonly used water-soluble substances and other PENTAPHARM actives.

## INTRODUCTION

SYN<sup>®</sup>-COLL is an unpreserved, water-soluble, glycerine-based, clear, aqueous peptide solution ready to use. SYN<sup>®</sup>-COLL is a deep-penetrating, bio-active ingredient developed to erase any type of wrinkles and to repair existing stretch marks.

PENTAPHARM has screened a wide range of common ingredients to test their compatibility with SYN<sup>®</sup>-COLL.

The following guidelines give an overview of those raw materials tested and found to be either compatible or incompatible with SYN<sup>®</sup>-COLL.

## GENERAL RECOMMENDATIONS

- Dosage:** For skin care preparations, concentrations of 1 to 3% SYN<sup>®</sup>-COLL are recommended.
- Processing:** SYN<sup>®</sup>-COLL can be processed either cold or warm (up to 2 hours at 80°C) and is incorporated into the aqueous phase of a cosmetic formulation.
- pH:** The optimal pH range for the formulation with SYN<sup>®</sup>-COLL is between 3.0 and 7.0.
- Ethanol:** SYN<sup>®</sup>-COLL is compatible with ethanol at concentrations up to 50%.



## TEST PROCEDURE

The different raw materials were tested with 3% SYN<sup>®</sup>-COLL in aqueous solutions.

The raw materials to be tested were used in concentrations according to the manufacturer's indications. **Should these raw materials be used at other concentrations, we recommend to eventually re-test their stability with SYN<sup>®</sup>-COLL.**

The samples were stored at 4°C, room temperature and 40°C. The samples were judged after 1 month and again after 3 months according to the following criteria: pH value, odor, color, appearance, viscosity.

The results of these compatibility tests are split into three groups:

- **Recommended substances:** without or with very slight turbidity, stable pH value, no odor or color development, stable viscosity.
- **Compatible substances:** with slight turbidity, stable pH value or slight variation, no odor or color development, stable viscosity.
- **Substances with limited compatibility:** high turbidity, and/or unstable pH value, and/or odor or color development, and/or unstable viscosity.

**However, if these substances with limited compatibility are used with SYN<sup>®</sup>-COLL in an emulsion or/and in lower concentration, probably no visible incompatibilities can be recognized.**



## PRESERVATIVES

### RECOMMENDED PRESERVATIVES

Product Name / Supplier	% Wt.	INCI Name
Phenoxetol / Nipa	1.0	Phenoxyethanol
Glydant 2000 / Lonza	0.4	DMDM Hydantoin
Isocil PC / Lonza	0.1	Methylchloroisothiazolinone, Methylisothiazolinone
Spectradyne / Lonza	0.3	Chlorhexidine Digluconate
Benzoic Acid / VWR	0.2	Benzoic Acid

With SYN<sup>®</sup>-COLL, these preservatives formed stable aqueous solutions without or with very slight turbidity.

### COMPATIBLE PRESERVATIVES

Product Name / Supplier	% Wt.	INCI Name
Nipastat Sodium / Nipa	0.1	Methylparaben, Butylparaben, Ethylparaben, Propylparaben
Nipaguard PDU / Nipa	0.5	Diazolidinyl Urea
Unicide U-13 / Lipo	0.6	Imidazolidinyl Urea
Glycacil 2000 / Lonza	0.8	Iodopropynyl Butylcarbamate
Irgasan DP300 / Ciba	0.3	Triclosan

With SYN<sup>®</sup>-COLL, these preservatives formed stable aqueous solutions with slight turbidity.

### PRESERVATIVES WITH LIMITED COMPATIBILITY

Product Name / Supplier	% Wt.	INCI Name
Potassium Sorbate / CFS-Schweizerhall	0.5	Potassium Sorbate
Benzyl Alcohol / VWR	1.0	Benzyl Alcohol
Geogard 221 / Lonza	0.8	Dehydroacetic Acid (and) Benzyl Alcohol

These substances are not recommended for clear formulations, but might be suitable for emulsion-type preparations.



## HYDROCOLLOIDS

### RECOMMENDED HYDROCOLLOIDS

Product Name / Supplier	% Wt.	INCI Name
Pemulen TR-1 / Noveon	1.0	Acrylates / C10-30 Alkyl Acrylate Crosspolymer
Carbopol ETD 2001 / Noveon	0.5	Carbomer
Natrosol 250 HHX / Hercules	2.5	Hydroxyethyl Cellulose
Keltrol RD / Kelco	3.0	Xanthan Gum
Stabileze QM / ISP	0.5	PVM/MA Decadiene Crosspolymer
Sepigel 305 / Seppic	3.0	Polyacrylamide (and) C13-14 Isoparaffin (and) Laureth-7
Structure XL / National Starch	5.0	Hydroxypropyl Starch Phosphate

These hydrocolloids formed stable gels with SYN<sup>®</sup>-COLL.

### COMPATIBLE HYDROCOLLOIDS

Product Name / Supplier	% Wt.	INCI Name
Aristoflex AVC / Clariant	1.0	Ammonium Acryloyldimethyltaurate / VP Copolymer

With SYN<sup>®</sup>-COLL, this hydrocolloid formed a gel that developed a slight turbidity.

## UV FILTERS

### UV FILTERS WITH LIMITED COMPATIBILITY

Product Name / Supplier	% Wt.	INCI Name
Parsol HS / Roche	5.0	Phenylbenzimidazole Sulfonic Acid
Uvinul MS 40 / BASF	5.0	Benzophenone-4

With SYN<sup>®</sup>-COLL, these UV filters formed unstable solutions.



## MISCELLANEOUS SUBSTANCES

### RECOMMENDED MISCELLANEOUS SUBSTANCES

Product Name / Supplier	% Wt.	INCI Name
Glycerin 86.5%	20.0	Glycerin
1,3-Butandiol	20.0	Butylene Glycol
EDG Plus	5.0	Ethoxydiglycol
Cremophor RH 410	5.0	PEG-40 Hydrogenated Castor Oil
Glycine	2.0	Glycine
Glycolic Acid	2.0	Glycolic Acid

These miscellaneous substances formed stable, clear to very slightly turbid solutions with SYN<sup>®</sup>-COLL.

### COMPATIBLE MISCELLANEOUS SUBSTANCES

Product Name / Supplier	% Wt.	INCI Name
D-Panthenol 50P	2.0	Panthenol
Propylene Glycol	20.0	Propylene Glycol
Lactic Acid	2.0	Lactic Acid
Citric Acid	2.0	Citric acid

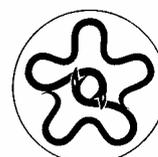
With SYN<sup>®</sup>-COLL, these miscellaneous substances formed stable solutions with slight turbidity.

### MISCELLANEOUS SUBSTANCES WITH LIMITED COMPATIBILITY

Product Name / Supplier	% Wt.	INCI Name
EDTA	0.1	EDTA
Sodium Metabisulfite	0.1	Sodium Metabisulfite
L-Lysine	2.0	Lysine
L-Glutamic Acid	2.0	Glutamic Acid

These substances are not recommended for clear formulations but might be suitable for emulsion-type preparations.

Only a short listing of miscellaneous materials has been formally screened. Clearly a wide range of ingredients can be used in combination with SYN<sup>®</sup>-COLL.



## PENTAPHARM ACTIVES

### RECOMMENDED PENTAPHARM ACTIVES

Product Name	Product Code	% Wt.	INCI Name
CEPHALIPIN	293-01	5.0	Cephalins, Disodium Cocoampho-diacetate
DISMUTIN <sup>®</sup> -BT	313-01	1.0	Superoxide Dismutase
EASHAVE	316-01	5.0	Triticum Vulgare (Wheat) Germ Extract, Saccharomyces Cerevisiae Extract, Sodium Hyaluronate
IRICALMIN	316-02	5.0	Triticum Vulgare (Wheat) Germ Extract, Saccharomyces Cerevisiae Extract, Sodium Hyaluronate
MARISCAN <sup>®</sup>	284-01	5.0	Glycosaminoglycans
PENTAGLYCAN	181-01	5.0	Glycosaminoglycans

These water-soluble PENTAPHARM actives formed stable, clear to very slightly turbid solutions with SYN<sup>®</sup>-COLL.

### COMPATIBLE PENTAPHARM ACTIVES

Product Name	Product Code	% Wt.	INCI Name
COLHIBIN	325-01	5.0	Hydrolyzed Rice Protein
EDELWEISS	900-01	5.0	Leontopodium Alpinum Extract
FITOBROSIDE	292-01	5.0	Triticum Vulgare (Wheat) Germ Extract
IMMUCELL <sup>®</sup>	302-01	5.0	Glycoproteins
LACTOMIDE	309-01	5.0	Milk Lipids, Ceramide 3
MELAWHITE <sup>®</sup>	282-01	5.0	Water, Leukocyte Extract
MELFADE <sup>®</sup> -J	308-02	5.0	Water, Arctostaphylos Uva Ursi Leaf Extract, Glycerin, Magnesium Ascorbyl Phosphate
PENTACARE-NA	319-01	5.0	Hydrolyzed Wheat Gluten, Ceratonia Siliqua Gum
PENTAVITIN <sup>®</sup>	180-01	5.0	Saccharide Isomerate
PEPHA <sup>®</sup> -NUTRIX	800272	5.0	Colostrum Whey
PEPHA <sup>®</sup> -TIGHT	800356	5.0	Algae Extract (and) Pullulan
PHYTALURONATE <sup>®</sup>	298-01	5.0	Ceratonia Siliqua Gum
PREREGEN <sup>®</sup>	315-01	5.0	Glycine Soja (Soybean) Protein, Oxido Reductases
REVITALIN <sup>®</sup> -BT	291-01	5.0	Glycoproteins
SERICIN	303-02	5.0	Sericin
SETAKOL <sup>®</sup>	320-01	5.0	Hydrolyzed Sericin

With SYN<sup>®</sup>-COLL, these water-soluble PENTAPHARM actives formed stable solutions with slight turbidity.



## **PENTAPHARM ACTIVES WITH LIMITED COMPATIBILITY**

<b>Product Name</b>	<b>Product Code</b>	<b>% Wt.</b>	<b>INCI Name</b>
ALPHA-ARBUTIN	336-01	2.0	Alpha-Arbutin
ELHIBIN <sup>®</sup>	301-02	5.0	Glycine Soja (Soybean) Protein
ERYTHRULOSE	307-01	5.0	Erythulose
GIGAWHITE <sup>™</sup>	910-01	5.0	Water, Glycerin, Malva Sylvestris (Mallow) Extract, Mentha Piperita (Peppermint) Leaf Extract, Primula Veris Extract, Alchemilla Vulgaris Extract, Veronica Officinalis Extract, Melissa Officinalis Leaf Extract, Achillea Millefolium Extract
HYASOL-BT	296-02	5.0	Sodium Hyaluronate
NECTAPURE	911-02	5.0	Glycerin, Water, Buddleja davidii Extract, Thymus vulgaris (Thyme) Extract
PENTACARE-HP	305-02	5.0	Water, Ceratonia Siliqua Gum, Hydrolyzed Casein
REGU <sup>®</sup> -AGE	800131	5.0	Oxido Reductases, Glycine Soja (Soybean) Protein, Hydrolyzed Rice Bran Protein

These substances are not recommended for clear formulations but might be suitable for emulsion-type preparations.

## **DISCUSSION**

SYN<sup>®</sup>-COLL is very easy to formulate in gels, cream gels and emulsions and shows good compatibility with most of the tested raw materials.

Some of the tested substances showed a limited compatibility in aqueous solution with SYN<sup>®</sup>-COLL. This does not necessarily mean that they cannot be used with SYN<sup>®</sup>-COLL in emulsions: the formula and/or the concentrations have to be carefully evaluated in detail to ensure the stability of the product.

We are open to discuss any questions connected with the formulation of SYN<sup>®</sup>-COLL and any addition to these guidelines would be welcome.

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## **PENTAPHARM LTD.**

Dr. Mathias Gempeler  
Vice President  
Head Sales & Marketing Cosmetics

Marie-Sophie Meyer  
Manager  
Service Center Cosmetics

