

SpecKare® PO

PIROCTONE OLAMINE



Features

- Formaldehyde-free, Paraben-free, Broad-spectrum Anti-Microbial
- Effectively eliminate unpleasant odor (Human & Pet)
- Excellently anti-dandruff active that soothes inflamed scalps and reduces flaking
- Increase the mean hair shaft thickness, suitable for volume-up formula
- Decrease the sebum output at the skin surface, suitable for anti-acne application
- Additional thickening properties
- Clinically approved effective, Safe to use, Non-irritating
- More formulation flexibility & solubility, also suitable for clear type



Registration number: 01-2119930451-47-0002

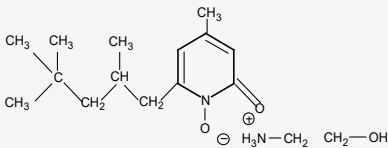
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*More efficacy
More safer
More options
for your formulation*

Good Quality Comes From Qualified Materials

Product Name	SpecKare® PO
INCI Name	Piroctone Olamine
CAS No.	68890-66-4
EINECS NO	272-574-2
Chemical Name	1-Hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)-2-(1H)pyridinone, 2-aminoethanol salt(1:1)
Structural formula	



Specification

Appearance	White crystalline powder
Odor	Characteristic
Solubility	Water (0.10g+10mL): non-soluble Methanol (1.00g+10mL): soluble
Purity(HPLC)	≥99.0%
pH(1% in water, 20 ℃)	8.5-10.0
Melting point	130-135 ℃
Loss on drying	≤0.3%
Ash (SO ₄)	≤0.2%
Particle size distribution	100mesh
E 1% (1 cm) at 317 nm expressed on dried substance	204-236
Ethanolamine	20.0-21.0%
Nitrosamine content (PPb)	≤50
Heavy metals (Pb, As, Cd, Co, Cr, Hg, Ni, Sb)	≤10 ppm
Hexane(GC)	≤300ppm
Ethyl acetate(GC)	≤3000ppm

Package & Storage

Storage	Store at cool & dry place, protected from light.
Shelf life	3years
Package	25kg/package

Regulation

Comply with regulations in EU & China, REACH registrtion



Safety Tests

Mutagenicity, AMES test performed on Salmonella Typhimurium/
Reverse Mutation Assay Strain: **Safe**

Skin sensitization: **Nonirritating (OECD 439)-Safe**

Eye irritation: **Nonirritating (OECD 437 BOCP)-Safe**

Stability

pH:	Stable (in solution) at pH 3-9. condition of neutral, Pka:7.4
Heat:	Excellent temperature tolerance, stable even heat above 80 ℃ for a while. Passed one-year stability in Shampoo with pH =5.5-7.0 at above 40 ℃
Light:	Decompose under direct ultraviolet radiation
Metals:	Solution degrades in the presence of cupric and ferric ions
Viscosity:	Increase surfactant viscosity

Application

Innovative Hair Care, Scalp Care, Skin Care, Oral care and Pet Care products.

Conditioner(rinse-off, leave-on), Hair Spray etc.

Anti-acne repair lotion, Anti-odor spray, Skin restoration cream, mask etc, both of rinse-off & leave-on products

Use Level

Antidandruff rinse-off	0.1-1.0%
Antidandruff leave-on	0.05-0.5%
Anti-acne rinse-off	0.1-1.0%
Anti-acne leave-on	0.05-0.5%
Pet care rinse-off	0.1-1.0%
Pet care leave-on	0.05-0.5%
Deodorant Spray	0.2-0.5%
Other Industries	Depends

Anti-microbial Effect

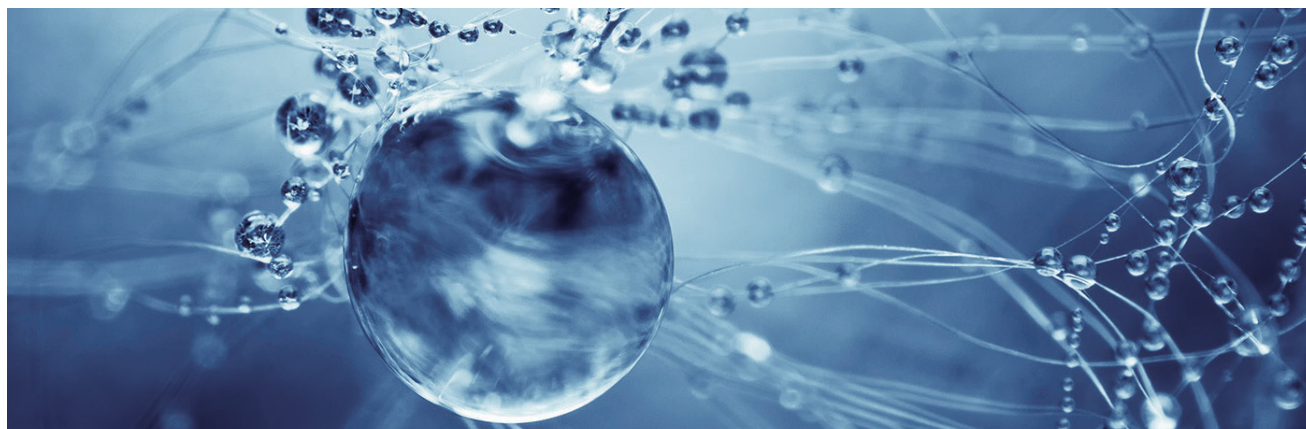
Microorganisms			MIC (mg/L)
Bacteria	Aerobic	Staphylococcus aureus	6.25
		Staphylococcus epidermidis	6.25
		Escherichia Coli	12.5
	Aerobic	Propionibacterim acnes	6.25
Fungi	Cutaneous fungi	Trichophyton rubrum	6.25
		T. mentagrophytes	12.5
		Microsporum canis	12.5
		Epidermophyton floccosum	6.25
	Candida	Candida albicans	25
		Candida tropicalis	25
	Malassezia furfur		12.5

Result: MIC of SpecKare® PO to 11 kinds of microorganisms between 6.25 and 25mg/L

Inhibit Malassezia, eliminate dandruff and itches from beginning: Experiments have confirmed that SpecKare® PO can inhibit the growth of Malassezia through anti-bacterial effect to block channels of dandruff generation, effectively inhibiting dandruff.

Comparative Study of PO VS ZPT VS Climbazole

	SpecKare® PO	ZPT	Climbazole
INCI Name	Piroctone Olamine	Pyrithione Zinc	Climbazole
Chemical/IUPAC Name	1-Hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)pyridin-2(1H)-one, compound with 2-aminoethanol (1:1)	Pyridine-2-thiol-1-oxide, zinc complex (2:1)	(R,S)-1-(4-chlorophenoxy)-1-imidazol-1-yl-3,3-dimethylbutan-2-one
Structure			
EU Functions	PRESERVATIVE	ANTIDANDRUFF ANTISEBORRHOEIC HAIR CONDITIONING PRESERVATIVE	ANTIDANDRUFF ANTIMICROBIAL PRESERVATIVE
EU Regulations	(a) Preservatives <input type="checkbox"/> a) Rinse-off products 1.0% <input type="checkbox"/> b) Other products 0.5% <input type="checkbox"/> (b) SCCS Non-Preservatives Up to 3.0%	(a) Not be used oral hygiene products (b) As a preservative: a) Rinse-off products (excluding oral hygiene products) 0.5% b) Rinse off hair products 1.0% (c) SCCS Rinse-off anti-dandruff hair care Up to 2% (d) Leave-on hair products 0.1%	(a) Hair lotions 0.2% (b) Face creams 0.2% (c) Foot care products 0.2% (d) Rinse-off shampoo 0.5% (e) Rinse-off anti-dandruff shampoo 2.0%



Recommended formula 1

Acne Spot Treatment Emulsion

(0.3% SpecKare® PO)

Features: This formulation can help to clear acne marks and it is a excellent anti-acne and lightening product. SpecKare® PO can effectively inhibit propionibacterium acnes. SpecKare® DPA can help repair damaged skin and SpecWhite® G40 can clear your acne marks.

Phase	Product Name	INCI Name	w/w%	Function
A	SpecSufc® M68	Cetearyl Glucoside and Cetearyl Alcohol	2	Emulsifier
	Potassium Lauryl Phosphate		0.5	
	Potassium Cetyl Phosphate		0.3	Emulsifier
	SpecThem® C1618	Cetearyl Alcohol	3	Emollient
	SpecThem® GMS	Glyceryl Stearate	2	Emulsifier
	Simmondsia Chinensis (Jojoba) Seed Oil		3	Emollient
	SpecKare® BTS	Camellia Sinensis Seed Oil	1	Humectant
	Squalane		3	Emollient
	SpecKare® GTCC	Caprylic/Capric Triglyceride	3	Emollient
	Dimethicone		1.5	Emollient
	SpecKare® VEA	Tocopheryl Acetate	2	Antioxidant
B	Glycerin		3	Humectant
	SpecThem® XTG200	Xanthan Gum	0.1	Stabilizer
	Hydroxyethylcellulose		0.15	Stabilizer
	Water		To 100	
	SpecKare® TRHL	Trehalose	2.0	Humectant
	SpecKare® NMF50	Betaine	1.0	Humectant
	SpecKare® ALLA	Allantoin	0.3	Conditioning Agent
	SpecKare® GlyG230	Glyceryl Glucoside	2	Humectant
	Disodium EDTA		0.1	Chelating Agent
C	SpecKare® HAL(1%liquid)	Sodium hyaluronate	3	Humectant
	SpecKare® DPA	Panthenol	2	Humectant
	SpecKare® PO	Piroctone Olamine	0.3	Anti-septic
	SpecWhite® G40	Glycyrrhiza Glabra (Licorice) Root Extract	0.1	Relieve anti-allergic
	Butylene Glycol		2	Humectant
	PrzvFree® CE85	Caprylyl Glycol & Ethylhexylglycerin	0.5	Preservative
	Fragrance		0.1	

Procedure:

1. Mix part A and heat to 80 °C, stirring until completely dissolved;
2. Mix part B components and stir well;
3. Mix A and B, homogenize for 2 min;
4. Cool the base below 45 °C, add part C, stirring until room temperature.

Properties:

Appearance	Light yellow cream
pH	5.88 (1:10 aqueous solution)
Viscosity	6640 (25 °C, 4 #, 30 rpm ,mpa.s)
Stability	45 °C for a month; -18 °C for a month

Recommended formula 2

Hair Conditioner

Procedure:

1. Heat A-1: Oil phase to 75 °C
2. Heat B: Water phase to 70-75 °C
3. Add A-1 into B while stirring
4. Cool to 55-60 °C, add phase A-2 and homogenize for three minutes.
5. Continue to cool to 40-45 °C, add phase C-PO, preservative and essence while stirring 10-15 minutes.

Phase	INCI Name	w/w%
A-1:	Octadecyl alcohol	6
	Docosyltrimethylammonium chloride	1
A-2	TC-1214 (100cst)	1.5
	TC-1233	1.5
B:	Glycine	3
	HEC	0.5
	TC-POLYQUAT 200L	0.3
	Aqua	To 100
C	SpecKare® PO	0.3
	Preservative	Q.S
	Essence	Q.S