PERSONAL CARE AND PHARMACEUTICAL

Product Guide

sonneborn

AN HF SINCLAIR BRAND

A Focus on Innovation. An Eye on Reliability. An Emphasis on Quality and Service.

Sonneborn is continuously evolving and innovating to exceed regulatory requirements and market trends and provide ultimate solutions to our customers, from petrolatum and white oil, to alkanes, plant based alternatives and renewable solutions.

Our Commitment to the Personal Care and Pharmaceutical Industries

At Sonneborn, an HF Sinclair brand, we have been setting the standard for the highest-quality specialty ingredients with innovative solutions for over 120 years. Our products are trusted globally to enhance the performance, safety, and effectiveness of personal care and pharmaceutical formulations.

Product Quality You Can Trust

Personal care and pharmaceutical products directly impact our daily lives, and today's consumers demand safe, high-performance ingredients and reliable supply. Sonneborn's white oils, petrolatum, natural emollients and alkanes are known for their consistency, purity, and inertness, making them the trusted choice for formulators worldwide.

Sonneborn's Innovation Journey

Sonneborn has been a pioneer in advancing product formulations to meet the changing needs of the personal care and pharmaceutical industries. Our innovation journey includes:

- **Developing Plant-Based Alternatives** to meet sustainability demands and market trends.
- Enhancing Product Formulations to improve performance and safety.
- **Investing in Technology** to stay ahead with cutting-edge solutions.
- **Meeting New Regulations** to ensure compliance with the latest industry standards and regulatory requirements.

We continue to drive innovation to meet and exceed evolving market needs while ensuring the highest quality and sustainability.

Meeting Industry Standards

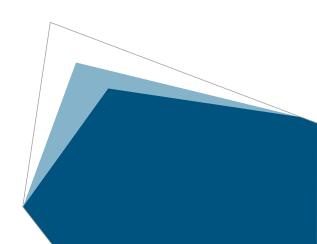
Sonneborn offers products that meet the strict standards of global pharmacopoeias, including **European (Ph. Eur)** and **American (USP)**. Our products also comply with FDA classifications, ensuring safety and quality across industries.

Global Expertise and Reach

With production facilities in **Amsterdam**, **The Netherlands** and **Pennsylvania**, **USA** Sonneborn is a global leader in developing the highest-quality specialty products for the personal care and pharmaceutical markets.

Learn More

For more information about our products, visit **www.sonneborn.com** or contact our experienced sales team.



SONNEBORN WHITE OILS

Sonneborn White Oils are biologically stable, non-allergenic, non-comedogenic, and resistant to pathogenic bacterial growth. Their inert nature ensures they do not interact with other additives or compromise the performance of active pharmaceutical ingredients (APIs). This makes them highly versatile and easy to use in almost any formulation.

This unique combination of properties has established Sonneborn White Oils as ideal ingredients for a wide range of high-end applications, including personal care and pharmaceutical formulations. They also provide excellent lubricating, smoothing, and moisture-sealing properties in the final product. You'll find our white oils in products such as baby oils, lotions, sunscreens, wipes, and antibiotics. Sonneborn offers grades that meet European (Ph. Eur) and American (USP) pharmacopoeias, as well as FDA 21 CFR 178.3620 regulations. Our white mineral oils are available in viscosities from 3 cSt to 240 cSt at 40°C, with pour points ranging from +3°C to less than -18°C.

With our advanced capabilities and enhanced inline blending system, we can develop custom solutions tailored to meet your specific needs.

Typical values of Sonneborn Pharmaceutical and Personal Care Grade White Oils

		Viscosity cSt @ 40°C			Compliance				
	Density kg/m3 @ 20°C ASTM D-4052	US Products: ASTM D-445	Max. Pour Point °C ASTM D-97	Min. Flash Point °C ASTM D-92	US	5P	Ph. Eur.		FDA
		EU Products: ASTM D-7279			Purity	Full	Purity	Full	
WHITE OILS									
Hydrobrite HV (US)	860-890	230-310	-6	277	✓				
Hydrobrite 1000 (US)	860-885	180-240	-6	273		✓			
Hydrobrite 550 (US)	860-880	100-125	-9	254		✓			
Hydrobrite 380 (EU)	850-880	66-75	-6	220		✓		✓	
Kaydol EP/BP (EU)	870-890	63-70	-9	205		~		✓	
Kaydol N	870-890	63-70	-18	200		✓		✓	
Parol (EU)	850-880	63-70	-6	220		✓		✓	
Dosetol (EU)	865-885	52-57	-15	200		✓		✓	
Protol (EU)	850-880	35-39	-9	180		~	✓		
Rudol (EU)	845-875	28-34	-9	180		✓		✓	
Dinol (EU)	840-860	21-24	-6	180		✓		✓	
Blandol (EU)	830-860	14-18	-6	175		✓		✓	
Carnation (EU)	825-850	10-14	-6	165		✓	✓		
Klearol AV (EU)	825-834	7-8	-6	150		✓	✓		
Klearol (EU)	822-840	7-10	3	140		~	✓		
Lytol (EU)	810-830	3-5	3	110	✓		✓		
40 Oil (US)	810-830	3.9-5	3	120					•
Gloria (US)	859-880	39.3-41.5	-18	204		✓			

21 CFR 178.3620 (a)

All above grades have no taste and are near odorless.

Special viscosity and pour point oils are available upon request.

Some of the EU white oils are also available out of the US with similar specifications.

Sonneborn White Oil Applications

Personal Care

- Baby Oil
- Body Wash
- Cold Cream
- Ethnic Hair Care Products
- Eye Make-Up
- Hair Conditioner
- Hair Styling and Finishing
- Lipstick and Lip Balms
- Make-Up Removers
- Moisturizing Cream
- Shampoo
- Sun Tan Lotion
- Sun Tan Oil
- Waterless Hand Cream

Pharmaceutical

- Animal Health Veterinary
- Excipients
- Laxatives/Internal Lubricants
- Medicated Ointments



SONNEBORN PETROLATUMS

Sonneborn Petrolatum represents the world's broadest range of premium petrolatum products, designed to meet any formulation requirement.

With unmatched hydrating properties, Sonneborn Petrolatum sets the standard by which other moisturizers are measured. Valued by personal care and pharmaceutical companies alike, it is recognized for being safe, highly effective, and an economical base for formulations.

Petrolatum enhances lubricity and moisture loss resistance in products like lotions, creams, ointments, and hand cleaners. Odorless and tasteless, it comes in a range of colors, from white to yellow, and varies in consistency and shear strength.

Our advanced manufacturing process ensures that we provide the highest-quality petrolatum products, including:

- white petrolatum
- yellow petrolatum
- hard petrolatum
- soft petrolatum
- BHT-Free petrolatum
- vitamin E enriched petrolatum
- ... and more.

Additionally, we can custom formulate special grades to meet your specific needs.

Sonneborn **FineLine™** is a BHT-free premium petrolatum product line developed for customers looking for the highest quality petrolatum, which does not contain chemical antioxidants. The FineLine™ range consists of six products and are all compliant with the European and US Pharmacopeia. It meets the highest purity and quality standards and can be used in pharmaceutical and personal care applications.

Typical Values of Sonneborn Pharmaceutical and Personal Care Grade Petrolatums

	Kin Viscocity	/	Lovibond color Y	Compliance					
	@ 100°C, cSt US Products: ASTM D-445 EU Products: ASTM D-7279	Drop Point Test method US: USP EU: Ph. Eur.	Cone Penetration ASTM D-937	IP-17	US Purity	;P Full	Ph. Eur. Purity F	ull	FDA
WHITE SNOWWHITE GRAD	DES (US)			2 " Cell					
Snowwhite EC	6.0-13.0	35-70	160-180	Max. 2.0		✓		✓	
Snowwhite MD	10.5-13.0	35-70	160-180	Max. 1.0		~		✓	
Snowwhite MD-LB	10.5-13.0	35-70	160-180	Max. 1.0		~		✓	
Snowwhite N	Min. 9.4	35-70	160-180	Max. 1.0		✓		✓	
Snowwhite P1	Min. 8.5	35-70	180-200	Max. 0.5		~		✓	
Snowwhite PC	3.0-6.0	35-70	NA	Max. 1.5	✓		v		
Snowwhite SB150	5.0-9.0	35-70	140-160	Max. 0.5		~		✓	
Snowwhite SEMPER	3.0-5.0	35-70	160-200	Max. 1.5		✓		✓	
Snowwhite T5	6.0-13.0	35-70	160-180	Max. 1.5		✓		✓	
Snowwhite T5-J	Min. 6.5	35-70	160-180	Max. 1.5		✓		✓	
Snowwhite XH	Min. 7.0	35-70	140-160	Max. 1.5		~		✓	
FONOLINE GRADES				2 " Cell					
White Fonoline H (EU)	9.0-14.0	35-70	210-245	Max. 1.0		✓		✓	
Super white (US)	8.54-11.25	35-70	195-230	Max. 0.7		✓		✓	•
White (US)	8.54-12.56	35-70	210-245	1.5-2		✓		✓	٠
PROTOPET GRADES				2 " Cell					
Yellow 2A (US)	11.6-18.0	35-70	180-215	20-40		✓		✓	٠
Alba (US)	11.27-13.82	35-70	180-210	0.7-0.9		✓		✓	•
White Protopet 1SH (EU)	Min. 8.5	35-70	180-210	Max. 1.0		✓		✓	
Super white (US)	10.20-15.50	35-70	180-210	0.7		✓		✓	•
White 1S (US)	10.20-15.50	35-70	180-210	1.5-2		✓		✓	٠
White 2L (US)	10.72-13.82	35-70	180-210	5-10		✓		✓	•
White 3C (US)	10.72-13.82	35-70	180-210	10-25		✓		✓	٠
YELLOW PETROLATUM				1/2 " Cell					
Blond Petroleum Jelly	9.0-11.0	40-60	160-180	Max. 12.0/ Max. 0.8		~		✓	
Extra Light Yellow	Min. 6.0	40-60	160-180	Max. 12.0/ Max. 0.8		~		~	
FINELINE GRADES (EU)				2 " Cell					
Fineline LS	5-9	35-70	180-210	Max. 1.0		✓		~	
Fineline LM	5-9	35-70	160-180	Max. 1.0		v		✓	
Fineline LH	5-9	35-70	130-160	Max. 1.0		✓		✓	
Fineline HS	9-14	35-70	180-210	Max. 1.0		v		✓	
Fineline HM	9-14	35-70	160-180	Max. 1.0		✓		✓	
Fineline HH	9-14	35-70	130-160	Max. 1.0		✓		✓	

■ 21 CFR 178.3700 ● 21 CFR 172.880

All above grades have no taste and are odorless.

SENSORY ENHANCED PETROLATUMS

SENSORY ENHANCED PETROLATUMS. When developing new ingredients for personal care formulations, we want to balance physical properties along with the desired sensory profile. Our focus on sensory attributes led us to the development of a complete Sensory Enhanced Emollient line. All products provide an enhanced skin-feel, while still delivering the functional benefits of petrolatum. These exceptional emollients are ideal for elegant formulations that offer the functional moisturizing benefits of petrolatum. The Sensory Enhanced products have very distinct attributes that complement many

personal care formulations with their silky skin-feel, easy spreadability, easy handling, and smooth application.

SonneCone CM is a soft, translucent, beautifully high gloss petrolatum that offers a powdery soft after feel. It is an excellent emollient for skin lotions designed to be lightweight, yet deliver optimal moisturizing benefits. SonneCone DM1 is soft and translucent with medium gloss and higher cushion. Both are excellent options for enhancing products where skin protection and TEWL are critical, but a more luxurious skin-feel is desired.

	Kin Viscocity @ 100°C, cSt ASTM D-445	Drop Point (°C) USP	Cone Penetration ASTM D-937	Lovibond color Y IP-17	Compliance		nce
				3 " Cell	USP	Ph. Eur.	FDA
SonneCone DM1 (US)	3.95	35-70	240-300	1 max	Full	Full	•
SonneCone CM (US)	3.62	35-70	240-300	1 max	Full	Full	•

• 21 CFR 172.880

Sonneborn Petrolatum Applications

Personal Care

- AP/Deo
- Body Wash
- Creams and Lotions
- Hair Conditioner
- Hair Styling and Finishing
- Hand Cleaners
- Lip Balm
- Massage Cream
- Moisturizing Lotions
- Permanent Waves
- Petroleum Jelly
- Scalp Protector
- Sun Care Products
- Waterless Hand Cream

Pharmaceutical

- Barrier/Skin Protectants
- Dental Adhesive Formulations
- Medicated Ointments
- Suppositories

SONNEBORN ALKANES- SILICONE ALTERNATIVES

Sonneborn Alkanes are excellent silicone alternatives that are versatile and compatible, designed to meet the safety and performance standards required for formulating high-quality personal care products. Backed by favorable skin and ocular test results, they provide peace of mind and reliability in every application. These products offer distinct advantages, including protective barrier properties and the capacity to be an excellent vehicle for other key ingredients. These products are available globally and are not impacted by the recent D4, D5, D5 legislation.

Typical Properties of Alkanes

Typical Features	Lilac (US)	Lilac (EU)	Iris*	
Density at 20°C (ASTM D-4052)	810-830	810-830	791-806	
Kin. Viscosity at 40°C	3.9-5.0	3.9-5.0	2.25-2.95	
Kin. Viscosity at 40°C - Test method	ASTM D-445	ASTM D-7279	ASTM D-445	
Pour Point (°C) (D-97)	3 Max.	3 Max.	-12 Max.	

*Iris does not meet the REACH regulation for European Sales

Lilac G INCI Name C13-14 Alkane and C15-23 Alkane is also available out of US and EU with same specs.

Typical Properties of SonneCone

Sonneborn Alkane Applications

Personal Care

- Eye Make-Up
- Waterless Hand Cream
- Make-Up Remover
- Baby Oil
- Body Wash
- Hair Shampoo
- Hair Conditioner
- Hair Styling

SonneNatural[™] NATURE'S FINEST EMOLLIENTS

SonneNatural NATURE'S FINEST EMOLLIENTS

is Sonneborn's branded line of natural, plant based ingredients for use in cosmetic applications where an emollient, moisturizer, solubilizer or dispersing agent is required. SonneNatural products offer the sensory, moisture retention, and emolliency.

SonneNatural is a soft, translucent-yellow, medium gloss product. It has a creamy application, excellent spread, low slip and nice cushiony feel. The combination of softness and luxurious feel makes this product a perfect natural alternative to petrolatum in cosmetic formulations. SonneNatural also has almost no odor and is color stable.

SonneNatural 200 Series offers two distinctly unique products. SonneNatural H-203 and SonneNatural J-207.

SonneNatural H-203 offers a firm base in personal care formulations.

- Medium cushion, medium to low gloss, low slip, short playtime, and minimal spreadability
- The short play time delivers body and tack to formulations
- Ideal for hair styling products such as putty and pastes, and for lip balms that require a more compact feel.

SonneNatural J-207 offers the natural, classic look and feel of neat petroleum jelly.

- Soft with medium cushion, very glossy with medium slip and playtime, and high spreadability
- Its properties and appearance fit best for a neat petroleum jelly replacement, or for use in elegant lip moisture balms or high-end hair pomades.

SonneNatural NXG is the firmest emollient in the SonneNatural line. It offers a unique combination of properties. It is very firm upon initial feel, but works down nicely. Additionally, it is non-greasy and exhibits excellent moisture retention and humectant properties with unmatched emolliency. Its low odor may lower your fragrance loading and its occlusive after-feel leaves skin feeling soft and luxurious. Its firm texture could benefit in anhydrous formulas by reducing the amount of thickeners or waxes needed in the end formulation.

Property	Test Method	White Protopet™ 1S	SonneNatural	SonneNatural H-203	SonneNatural J-207
Cone Penetration	ASTM D-937	180-210	130-220	180-250	170-240
Drop Melting Point, °C (°F)	ASTM D-127	54-60 (130-140)	52 (126)	49 (120)	46 (115)
Color, Lovibond 2 " Cell, Y	IP 17	1.5-2.0	2.0	1.3	1.0
Viscosity @ 100°C, cSt	ASTM D-445	~12.0	~16.5	~14.6	~11.8
Natural Index	ISO 16128	0	0.7	0.6	0.6
Natural Origin Index	ISO 16128	0	1	1	1

SonneNatural Property Comparison to Petrolatum

Information on natural index and natural origin index as per ISO 16128 is available upon request.

SonneNatural brand products are certified by Sonneborn to contain 100% natural ingredients of vegetable origin. To learn more about SonneNatural, please request our detailed brochure, through the website. **www.sonneborn.com**

The Sonneborn family of products have been soothing people since they were babies. We continue to build on

our innovation, developing new and better products that deliver a natural fit in today's world. The company that has brought you the purest, high purity specialty ingredients now brings you plant based products with no compromise on quality. As always, we are excited to hear from you so we can start on something new.

Sonneborn formulates highly refined products for thousands of customers and applications worldwide - from personal care and pharmaceuticals to food and industrial applications.

Everything we produce and every action we take is based on the knowledge that nothing is more valuable to the scientists and the customers who use our products than absolute confidence in our products, our experts and our services.

sonneborn

AN HF SINCLAIR BRAND

PRINCIPAL LOCATIONS

NORTH AMERICAN AND ASIA PACIFIC

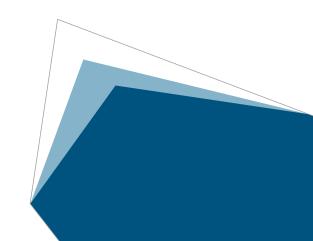
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