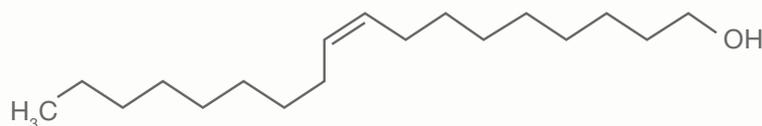




## Using Kollicream® OA to Enhance Topical and Transdermal Formulation Development

Kollicream® OA (oleyl alcohol) is a versatile excipient that functions as a solubilizer, emollient, and skin penetration enhancer. Manufactured under GMP conditions, this compendial grade excipient is derived from sustainably sourced materials and certified by the Roundtable on Sustainable Palm Oil (RSPO). Kollicream® OA is applicable for both topical and transdermal formulations, ranging from topical creams to transdermal patches.



Kollicream® OA is an unsaturated high molecular weight fatty alcohol.

 **BASF**  
We create chemistry

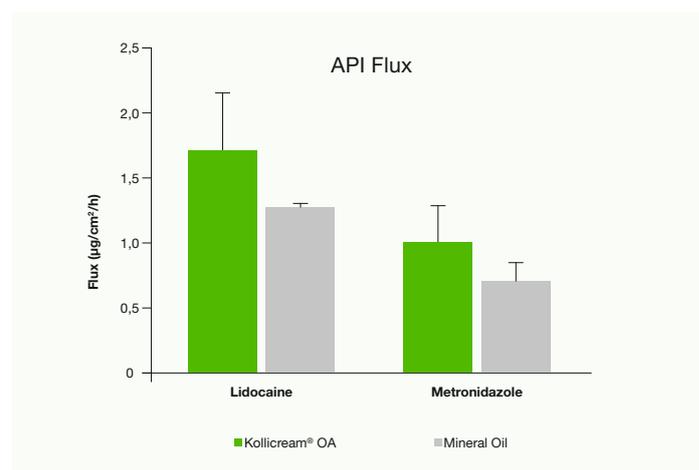
## Achieving target sensory profiles with Kollicream® OA

Kollicream® OA is a clear, slightly yellow, weakly polar oil. Offering medium emollience, Kollicream® OA can be combined with other Kollicream® emollients to achieve an ideal sensory profile.

Emollient	Chemical Name	Spreading				
		mPa·s	MW	mm <sup>2</sup> /10 min	Class	Emollience
Kollicream® IPM	Isopropyl myristate	5-6	270	1200	Fast	Light
Kollicream® 3C	Cocoyl caprylocaprate	11	335	800	Medium	Medium
Kollicream® OA	Oleyl alcohol	33	270	700	Medium	Medium
Kollicream® DO	Decyl oleate	15.9	415	700	Medium	Medium
Kollicream® OD	Octyldodecanol	58-64	300	600	Medium	Medium
Kollisolv® MCT 70	Medium chain triglycerides	25-33	500	550	Medium	Medium
Kollicream® CP 15	Cetyl palmitate 15	Solid	480	Solid	Slow	Rich

## Enhancing dermal drug delivery with Kollicream® OA

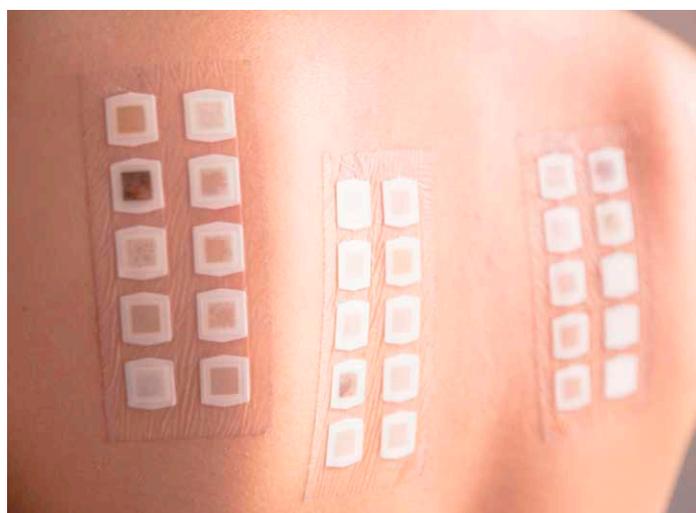
- Kollicream® OA is a known skin penetration enhancer, allowing for improved API permeation and flux through the skin
- In vitro permeation testing was conducted to study the permeation of lidocaine and metronidazole through human cadaver skin treated with creams composed of variable penetration enhancers
- Enhancement of API permeation and flux can be achieved by formulating with Kollicream® OA



Permeation study was conducted on Franz diffusion cells with an active diffusion area of 1.77 cm<sup>2</sup> that contained PBS as the receiver fluid and treated with 1 g of formulation (n=6).

## Developing mild formulations with Kollicream® OA

- Several BASF pharma grade dermal excipients including Kollicream® OA demonstrate a benign mildness profile
- Kollicream® OA has been patch tested at a high concentration (35%) for a 48-hour exposure period on highly sensitive patients with a history of contact dermatitis
- Kollicream® OA elicited one reaction on a patch test of over 500 subjects, indicating that Kollicream® OA has minimal allergy or irritation potential



Allergy and irritation score of patched area is determined based on a scale of 0 to 3+. Excipients showing no allergy or irritation potential are assigned a score of 0.

## Formulating topicals with Kollicream® OA

Kollicream® OA is a versatile excipient that has a wide history of use including creams, gels, lotions, ointments, films, and patches. Utilize Kollicream® OA as a solvent, emollient, or skin penetration enhancer to develop sensorially pleasing, functional topical and transdermal formulations.

### Classic cream formulation

Phase	Ingredient	Chemical name	Function	Mass (wt/wt%)
A	Kollicream® OA	Oleyl alcohol	Emollient	10.00
	Kolliwax® GMS II	Glycerol monostearate 40-55 (Type II)	Viscosity modifying agent	0.80
	Kolliphor® CS 20	Macrogol cetostearyl ether 20	Emulsifier	2.60
	Kolliwax® S	Stearic acid 50	Viscosity modifying agent	0.10
	Kolliwax® CSA 50	Cetostearyl alcohol	Viscosity modifying agent	7.50
B	Deionized water	Water	Solvent	78.00
C	Euxyl® PE 9010	Phenoxyethanol	Preservative	1.00

### Simple cream formulation

Phase	Ingredient	Chemical name	Function	Mass (wt/wt%)
A	Kollicream® OA	Oleyl alcohol	Emollient	20.00
	Kolliphor® CS A	Cetostearyl alcohol (type A), emulsifying	Cream base	5.00
B	Deionized water	Water	Solvent	73.80
	Xanthan gum	Xanthan gum		0.20
C	Euxyl® PE 9010	Phenoxyethanol	Preservative	1.00



Classic cream macrostructure.

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