

HALLSTAR 

**HallSens™** 

*A sensationally light emollient and wetting agent*

# HallSens™ OI

*\*Formerly known as HallStar® Octyl Isononanoate*

Personal care manufacturers often seek emollients that are light and breathable, and that spread easily. Previously, these emollient needs have been satisfied by such silicone-based ingredients as cyclomethicones. However regulations and consumer perceptions limit their suitability, and until now the performance of silicone alternatives fall short of these benchmarks.

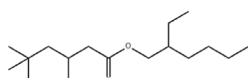
The HallSens™ platform of differentiated emollients has been created by Hallstar as a collection of light and easily spreading carbon-based emollients for delivering an impactful consumer sensory experience.

HallSens™ OI is a unique globally approved emollient suitable for applications across categories in the personal care industry for delivering both sensationally light, dry, lubricious, and smooth aesthetics as well as exceptional wetting and dispersancy to pigments and mineral filters. HallSens™ OI is a versatile technology, suitable for use in sun care, skin care, color cosmetics, and hair care applications.

## TECHNICAL DATA

- INCI name: Ethylhexyl Isononanoate
- Molecular weight: 270.5 g/mol
- Appearance: transparent
- Color: APHA 30 max
- Specific gravity: 0.856 g/ml
- Viscosity: 4 cps
- Refractive index: 1.43
- Boiling point: 149°C
- Flash point: 127°C
- Derivation: Petrochemical

### Chemical Structure:



## KEY FEATURES AND BENEFITS

HallSens™ OI is a differentiated molecule designed to deliver consumer appreciated sensory benefits as well as formulator appreciated dispersancy benefits across personal care categories

- Multifunctional
  - Dry, lubricious, weightless feel
  - Wetting agent and dispersant
- Branched nature
  - Fast and easy spreadability
  - Imparts a low viscosity and low freeze point
  - Reduces tackiness of heavier oils
  - Enhances finished product feel (softer, drier, and/or less oily)
- Globally approved, including China
- Non-occlusive

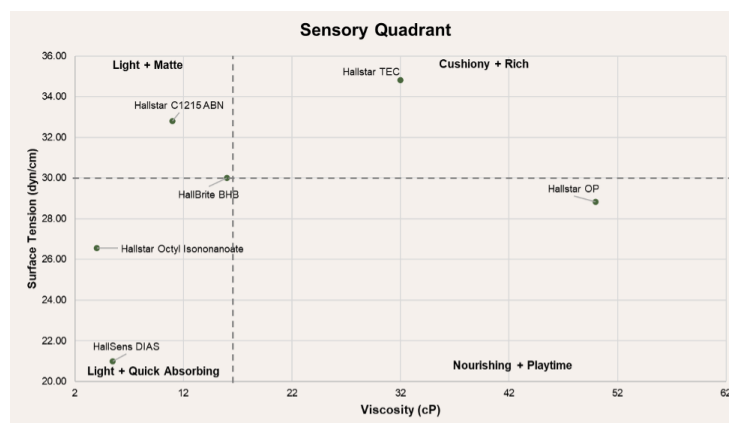
## SENSATIONAL SENSORIALITY

As an emollient, HallSens™ OI offers a sensational sensoriality. In comparison to traditional emollients, it delivers an exceptionally light and quick absorbing aesthetic.

To achieve this light and quick absorbing skin feel, low-viscosity emollients with a low surface tension are typically preferred. As is shown in Figure 1, HallSens™ OI is comparatively low in both viscosity and surface tension, putting it squarely in the “Light and Quick” sensory quadrant.

## APPLICATIONS

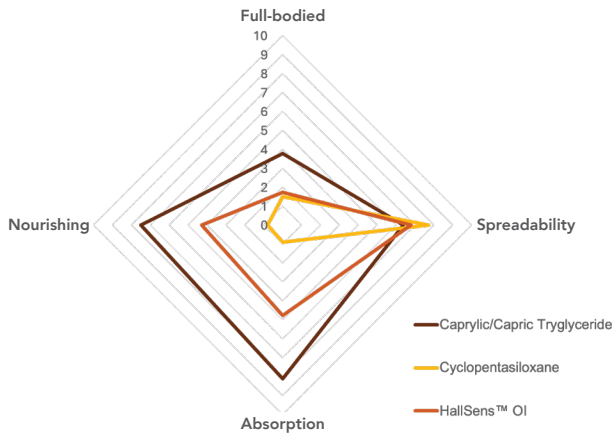
- Sun care – especially mineral systems
- Color cosmetics
- Skin care
- Hair care
- Typical use level: 1 – 20%
- Suitable pH range: 4 - 8



**Figure 1: Sensory Quadrant**

HallSens™ OI is lighter and quicker spreading than C12-15 Alkyl Benzoate and HallBrite® BHB, but not as light and quick spreading as HallSens™ DIAS. It is significantly less heavy and rich compared to other traditional emollients.

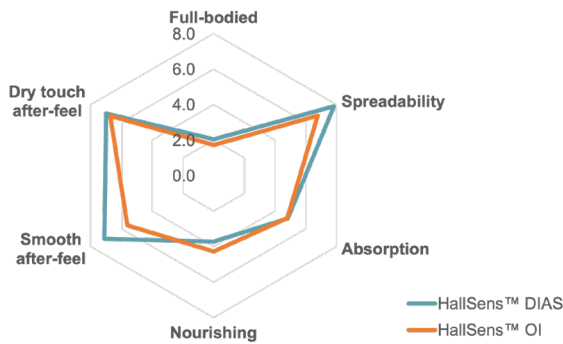
Sensory evaluations confirm that this low viscosity / high spreading profile translates into perceivable aesthetic benefits.



**Figure 2: Sensory Evaluation**

HallSens™ OI delivers similar spreadability, quicker absorption and a lighter skin feel than CCT, as well as similar thickness (between finger and skin) to D5, while providing a moisturizing aesthetic.

HallSens™ OI gives a similar but uniquely different sensory profile than Hallstar's HallSens™ DIAS emollient.



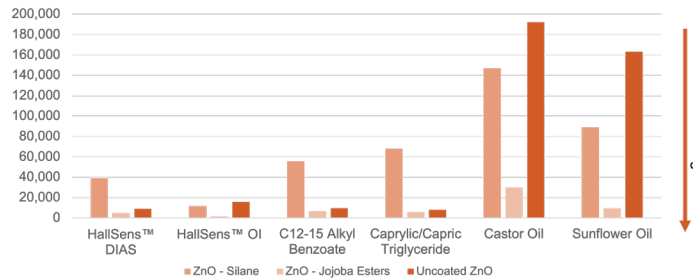
**Figure 3: HallSens™ DIAS vs HallSens™ OI**

Some of HallSens™ OI's aesthetics closely match those of HallSens™ DIAS: comparable thickness and dry feel, but with less spreadability. HallSens™ OI has a richer texture but a less smooth after-feel than HallSens™ DIAS. Although both are light and easily spreading, HallSens™ OI provides a more substantive and lubricious feel.

*Results of the internal sensory test based on the Static Descriptive Test (QDA - Quantitative Descriptive Analysis), with trained panelists providing scores for each parameter on a scale from 0 to 10, n = 9*

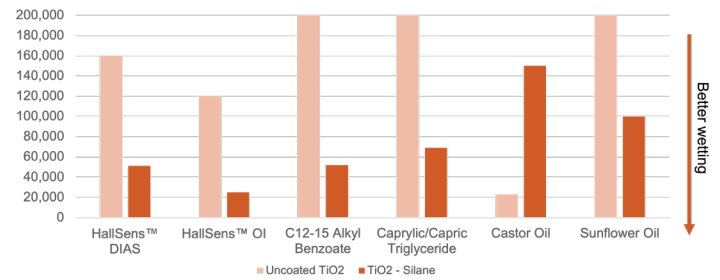
## WETTING AND DISPERSANCY

The unique molecular architecture for the HallSens™ OI emollient enables it to function very well as a wetting agent and dispersant for particulate ingredients like zinc oxide and titanium dioxide mineral UV filters.



**Figure 4: HallSens™ DIAS vs HallSens™ OI**

*HallSens™ OI shows remarkable ZnO wetting compared to other commonly used oils, for both coated and uncoated particles.*



**Figure 5: Viscosity of 40% TiO<sub>2</sub> In Various Oils**

*HallSens™ OI also shows excellent wetting for both coated and uncoated TiO<sub>2</sub>.*

## CONCLUSION

HallSens™ OI is the latest entry in the HallSens™ brand platform. It is a differentiated and globally approved emollient suitable for sun care and other applications across personal care categories. HallSens™ OI delivers sensationally light, breathable, smooth, and lubricious aesthetics while also offering exceptional mineral wetting and dispersancy.

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