

NEW INGREDIENTS FOR COSMETICS AND PERSONAL CARE FORMULATIONS

Shell
GTL Solvents



SHELL GTL SOLVENTS ARE NEXT GENERATION, HIGH PURITY PARAFFINIC FLUIDS BASED ON INNOVATIVE GAS-TO-LIQUIDS TECHNOLOGY.

Their unique synthetic composition, with low aromatics content and odour, may enhance various properties in cosmetics formulations.

WHY CHOOSE SHELL GTL SOLVENTS?

These premium quality materials offer a unique set of characteristics:

- **Reduced environmental impact:** low aromatic and naphthenic content designed to promote better biodegradability, lower ecotoxicity and lower photochemical reactivity, compared to conventional crude-derived solvents.
- **High purity:** synthesised from methane gas, GTL Solvents comprise only iso and normal paraffins. They have a bright and clear appearance.
- **Low odour:** their full paraffinic nature, and the very low levels of aromatics, sulphur, olefins and naphthenes, give the GTL products their typical very low odour levels.
- **Synthetic:** GTL technology is based on natural gas feedstocks. This process synthesises products with consistent paraffinic composition, quality, and stability.



Potential applications for Shell GTL GS Solvents in Cosmetics and Personal Care products

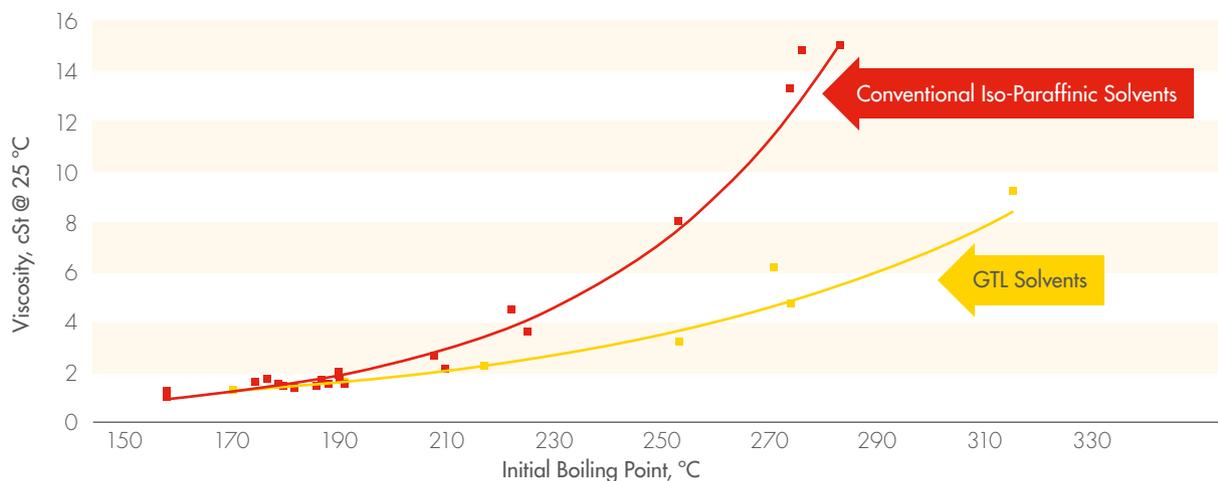
Product	INCI name	Hairsprays	Eye Make-up (mascara)	Eye Make-up (eye liner, eye shadow)	Skin care products (cleaning creams, lotions, liquids and pads)	Hand and body lotion	Foundation	Hair conditioner
GS190	C10-13 Isoparaffin	✓	✓	✓	✓	✓		
GS215	C12-15 Isoparaffin				✓	✓		
GS250	C14-16 Isoparaffin			✓		✓	✓	✓
GS270	C15-19 Isoparaffin		✓	✓		✓	✓	✓
GS310	C18-24 Isoparaffin		✓	✓		✓	✓	✓

Source: Cosmetic Ingredient review 2010, CIR Expert panel, Washington DC

Based on our in-depth knowledge of hydrocarbon solvents, including isoparaffins, we would expect the principal benefits of using our GTL products in cosmetics and personal care products to be:

- **Emolliency** – GTL products have designed paraffinic structures and controlled component distributions that may support in achieving improved lubricating, softening, and smoothing properties.
- **Improved spreadability** – The inherent low viscosity of GTL solvents over conventional solvents may improve flow-related properties.
- **Reduced odour** – The use of low impurity, highly paraffinic GTL solvents may contribute beneficially to odour reduction over many conventional products.
- **Visual appearance** – GTL solvents are clear and bright.
- **Higher purity** – The very low concentrations of impurities such as aromatics, sulphur or olefins in GTL solvents may support the quality of formulated end products.

Relative viscosity of GTL Solvents and Conventional Solvents



WORKING WITH SHELL CHEMICALS

We have been working with solvents customers for more than 80 years and have the key factors in place to meet customer needs.

Continuous innovation

Shell maintains its focus on technology & innovation in order to meet customer needs and help them compete in the marketplace.

A broad product line

Our wide range of solvents enables us to cover most – if not all – of our customers' solvents requirements. In this way we can help to rationalise and reduce the costs of procurement.

Global security of supply

Shell chemicals companies are leading global suppliers of solvents, with strategically located plants and a record of reliable supply. We work with distributors to optimise product supply.

Consistency of product quality

Long-term production experience and development of proprietary Shell processes deliver products of high quality and consistency.

Multiple sales channels

By delivering both directly to customers and via our distributor network, we have access to the options that will enable us to best meet the individual needs of our customers.

Experienced support staff

Shell Chemicals employees have in-depth knowledge of their solvents products, applications, and known health, safety and environment issues. Local sales staff are experienced and trained to identify and meet customer business needs.

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