

Solubilising the most challenging actives with...

Super Refined® Arlasolve™ DMI

Super Refined® Arlasolve™ DMI (Dimethyl Isosorbide) is a high purity, water white liquid with excellent solvent properties. Developed to enhance the delivery of active ingredients to where they are most needed, the benefits of **Super Refined® Arlasolve™ DMI** are attainable in a wide range of applications including transdermal and oral delivery systems.

Not only does **Super Refined® Arlasolve™ DMI** improve spreading and enhance the delivery of actives, it is also produced to the highest purity standards for advanced performance. Super Refining is a proprietary refining process that removes polar impurities, preventing adverse interactions with Active Pharmaceutical Ingredients (APIs). By minimising peroxide and formaldehyde levels, Croda's Super Refining process also improves the stability of pharmaceutical formulations, whilst minimising gelatin cross linking and cellular irritation potential.

Croda's Super Refined® Arlasolve™ DMI clearly delivers:

- Greater hydrophilic and hydrophobic active solubility
- Enhanced formulation and API stability
- Increased epidermal penetration
- Improved formulation aesthetics
- Reduced cellular irritation
- Reduced gelatin cross linking

For an excipient that not only increases the delivery of pharmaceutical actives to where they are needed most, but also offers high purity and stabilising benefits, look no further than Croda's **Super Refined® Arlasolve™ DMI**. Contact your nearest Croda division today for further details and samples.

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Penetrating solvent

In topical applications, Super Refined® Arlasolve™ DMI penetrates through the stratum corneum by increasing the polarity of the skin layer and thus improving the partitioning of hydrophilic actives¹.

Figure 1 illustrates that the addition of just 10% Super Refined® Arlasolve™ DMI to a formulation can result in a 15% increase in the amount of active delivered into the epidermis.

Super Refined® Arlasolve™ DMI is able to solubilise both hydrophilic and hydrophobic actives, it is fully miscible in water and proven in a variety of other commonly used pharmaceutical ingredients.

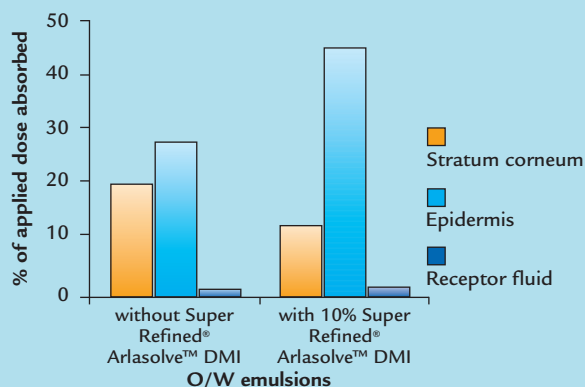


Fig. 1 Topical delivery efficacy of a hydrophilic active in two O/W formulations, one with and one without Super Refined® Arlasolve™ DMI

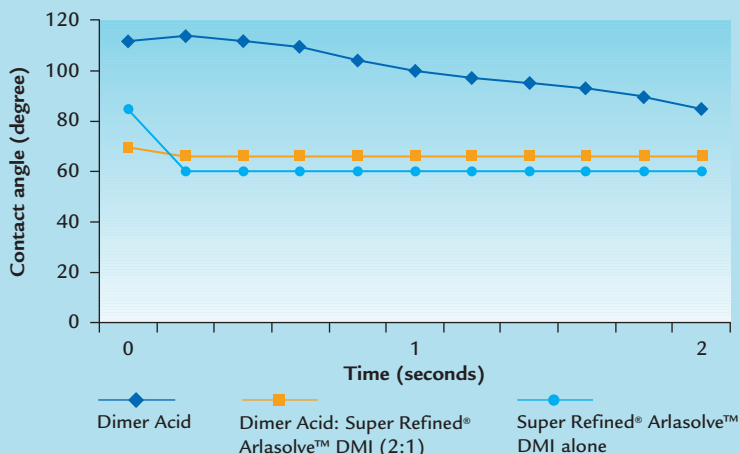


Fig. 2 Dynamic contact angle measurements of Dimer Acid, a formulation containing Dimer Acid and Super Refined® Arlasolve™ DMI at 2:1 and Super Refined® Arlasolve™ DMI

Superior spreading

Super Refined® Arlasolve™ DMI has the additional benefit of improving the spreading of viscous materials, which allows for a more even distribution of the active in the skin². Figure 2 demonstrates how Super Refined® Arlasolve™ DMI enhances the spreading properties of Dimer Acid, renowned as a very poor spreader that is strongly water repellent.

The improved spreading and enhanced delivery of actives into the deeper layers of the epidermis are valuable properties in a wide variety of topical applications including:

- Anti inflammatory drug delivery
- Scalp treatments
- Anti acne treatments

Enhanced oral delivery

Super Refined® Arlasolve™ DMI also offers application opportunities in oral delivery systems such as:

- Soft gelatin capsules
- Oral anaesthetic
- Toothpaste formulations

Used in a toothpaste or mouthwash, Super Refined® Arlasolve™ DMI can deliver a number of unique benefits. At a usage level of only 5%, Super Refined® Arlasolve™ DMI brings an immediate 'squeaky clean feel' to the mouth, whilst helping to prevent and remove plaque, tartar and stains, which goes a long way to keeping teeth clean and healthy.

References

1. Rossi, P. Wiechers, J. Kelly, C. Improved delivery and efficacy with Dimethyl Isosorbide, Cosmetics and Toiletries, (2005)
2. Wiechers, J, Rossi, P, Berg JE, Harnisch, LM, SOFW Journal, 132 (1/2), 52-56 (2006)

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