



## SALTIDIN® Spray Emulsion 15 %

Saltidin® (known as Picaridin in the US)

Issued in February 2011

This information and our technical advice - whether verbal, in writing or by way of trials - are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to verify the information currently provided - especially that contained in our safety data and technical information sheets - and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.



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## 1. Preliminary Remarks

The use of repellents by application to skin and clothing is an important means of human protection against blood-sucking insects and ticks as well as arthropod-borne disease transmission.

Saltidin® belongs to a new generation of synthetic repellents developed as an alternative to DEET.

Developed by Bayer AG using molecular modelling techniques, Saltidin® showed the best performance among more than 800 substances against a variety of arthropods and the best characteristics as far as safety and compatibility with skin and plastic materials are concerned.

Presently, this molecule is owned by Saltigo GmbH (LANXESS Group) and is marketed by LANXESS Corporation (previously a Division of Bayer Corporation) in the USA.

Saltidin® is a safe and reliable insect repellent and stands for effective protection against various diseases transmitted by:

- ✓ Mosquitoes
- ✓ Ticks
- ✓ Flies
- ✓ Horseflies
- ✓ Sandflies
- ✓ Biting midges
- ✓ Fleas
- ✓ Ants
- ✓ Cockroaches

Due to its broad spectrum of efficacy, its favourable toxicological and cosmetic properties, Saltidin® can be safely used by consumers.

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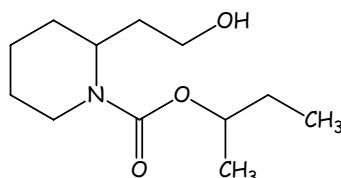
## 2. Physical and Chemical Properties

Chemical Name: 1-PIPERIDINECARBOXYLIC ACID, 2-(2-HYDROXY-ETHYL), 1-METHYLPROPYLESTER

Commercial Name: Saltidin®

Other Names: Icaridin, KBR 3023, Bayrepel™, Picaridin, (US EPA Registration)

Structure:



Empirical Formula:  $C_{12}H_{23}NO_3$

ELINCS Number 423-210-8

CAS Number 119515-38-7

Molecular weight: 229.3 g/mol

Melting point:  $< -170\text{ }^{\circ}\text{C}$

Boiling point:  $272\text{ }^{\circ}\text{C}$  at 1013 hPa

Viscosity: 30.7 sec. flow time accord. To DIN 53211, Dynamic: 129 mPa.s at  $20\text{ }^{\circ}\text{C}$

Vapour pressure:  $3.4 \times 10^{-4}$  hPa at  $20\text{ }^{\circ}\text{C}$   
 $5.9 \times 10^{-4}$  hPa at  $25\text{ }^{\circ}\text{C}$   
 $7.1 \times 10^{-3}$  hPa at  $50\text{ }^{\circ}\text{C}$

Flash point:  $142\text{ }^{\circ}\text{C}$

Density:  $1.036\text{ g/m}^3$  at  $20\text{ }^{\circ}\text{C}$

Solubility: In water:  $8.6\text{ g/L}$  at  $20\text{ }^{\circ}\text{C}$   
 In propane-2-ol:  $> 250\text{ g/L}$  at  $20\text{ }^{\circ}\text{C}$   
 In acetone:  $> 250\text{ g/L}$  at  $20\text{ }^{\circ}\text{C}$   
 In n-heptane:  $> 250\text{ g/L}$  at  $20\text{ }^{\circ}\text{C}$   
 In xylene:  $> 250\text{ g/L}$  at  $20\text{ }^{\circ}\text{C}$

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Appearance:	Clear liquid, colourless to brownish
Odour:	Slightly odorous
Storage conditions:	Store at room temperature

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### 3. Formulation

#### Saltidin® Spray Emulsion 15%

##### 3.1 Formulation:

No	Ingredient	CAS no	Supplier	Content %
1	Saltidin®	119515-38-7	Saltigo GmbH	15,00
2	Glycerine	56-81-5		5,00
3	Ethanol denatured	64-17-5		8,00
4	Carbopol Ultrez 10	19579-91-4 (Polymer Mixture)	Lubrizol	0,10
5	Polyethylene glycol 400	25322-68-3		3,00
6	Tego Care LTP	PEG-free emulsifier	Evonik	2,50
7	Perfume Floral D 12889 G	Not available	Symrise	0,50
8	Water deionised			65,87
9	Sodium Hydroxide solution 45%	1310-73-2		0,03

Cosmetic additives: Saltidin® is compatible with many cosmetic additives such as Dexpanthenol (Pro-vitamine B5) or Aloe Vera in formulations.

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### 3.2 Preparation:

Two vessel manufacturing, one with homogenization function.

Solution 1: Stir no. 1, 4, 6 at room temperature for 15 minutes (dispersion)

Solution 2: Stir no. 2,3,5,8 at room temperature for 15 minutes and put solution 1 into solution 2 and homogenize. Now add no. 7 and homogenize, too. Adjust the pH-value with NaOH to 5.0 - 6.0 and homogenize! The amount of NaOH is variable. Please approach slowly towards pH 5-6. The emulsion could separate if pH-value is higher than pH 6.

### 3.3 Physical data:

pH-value	5.0 – 6.0
Oudor	Perfume conform
Appearance	White, shiny emulsion
Content Saltidin® [%]	14 - 16

### 3.4 Packaging material:

Type	Volume	Material	Supplier
Bottle with pump valve	100ml	HDPE	Hermann Koch GmbH
Lotion bottle	100ml	HDPE	Hermann Koch GmbH

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## 3.5 Stability:

Short term stability for 8 weeks at 40 °C

Short term stability for 8 weeks at room temperature

Stability for 1 week at 0 °C

The above formulation is intended solely as a guide for our business partners and others interested in our product. As the conditions of use and application of the suggested formulation are beyond our control, it is imperative that it be tested to determine, to your satisfaction, whether it is suitable for your intended use(s) and application(s). This application-specific analysis at least must include testing to determine suitability from a technical, as well as health, safety and environmental standpoints. Further, although the ingredients, quantities thereof and properties of compounds or finished goods mentioned herein reflect our recommendation at the time of publication, this guide may not be subject to continuous review and/or updating, and you agree that use is undertaken at your sole risk. All information is given without warranty or guarantee, and it is expressly understood and agreed that you assume, and hereby expressly release us from all liability, in fort contract or otherwise, incurred in connection with the use of this guide.

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#### 4. Customer information

Further information on toxicity tests and effectiveness of Saltidin® formulations are listed in the table "Possible formulations" under the link "All Family Insect Repellent Spray 20%" and "All Family Insect Repellent Cream 20%".

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