

## Technical Data Sheet

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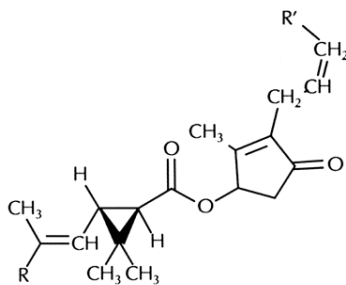
### CHEMICAL IDENTIFICATION

Common Name:	<b>PYRETHRUM</b>
Chemical Family:	Biological
CAS Number:	89997-63-7
Empirical Formula:	Natural pyrethrins are the 6 ingredients found in <i>Pyrethrum cinerariaefolium</i> extracts. Pyrethrum extract thus includes 6 active esters resulting from the combination of chrysanthemic acid or pyrethric acid with one of the following 3 alcohols: Pyrethrolone, Cinerolone or Jasmolone.

	chrysanthemic acid	pyrethric acid
Pyrethrolone alcohol	Pyrethrin 1	Pyrethrin 11
Cinerolone alcohol	Cinerin 1	Cinerin 11
Jasmolone alcohol	jasmolin 1	Jasmolin 11
	Pyrethrins 1	Pyrethrins 11

Purity: 25% or 50% +/- 0.5% w/w PBK Method

Structural Formula:



<b>Pyrethrin I</b>	R <sub>1</sub> est -CH=CH <sub>2</sub>	R est -CH <sub>3</sub>
<b>Pyrethrin II</b>	R <sub>1</sub> est -CH=CH <sub>2</sub>	R est -CO <sub>2</sub> CH <sub>3</sub>
<b>Cinerin I</b>	R <sub>1</sub> est -CH <sub>3</sub>	R est -CH <sub>3</sub>
<b>Cinerin II</b>	R <sub>1</sub> est -CH <sub>3</sub>	R est -CO <sub>2</sub> CH <sub>3</sub>
<b>Jasmolin I</b>	R <sub>1</sub> est -CH <sub>2</sub> -CH <sub>3</sub>	R est -CH <sub>3</sub>
<b>Jasmolin II</b>	R <sub>1</sub> est -CH <sub>2</sub> -CH <sub>3</sub>	R est -CO <sub>2</sub> CH <sub>3</sub>

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### PHYSICAL AND CHEMICAL CHARACTERISTICS

Molecular weight:	Pyrethrin 1: 328.4 - C <sub>21</sub> H <sub>28</sub> O <sub>3</sub>
Molecular formula:	Pyrethrin 11: 372.4 - C <sub>22</sub> H <sub>28</sub> O <sub>5</sub> Cinerin 1: 316.4 - C <sub>20</sub> H <sub>28</sub> O <sub>3</sub> Cinerin II: 360.4 - C <sub>21</sub> H <sub>28</sub> O <sub>5</sub> Jasmolin I: 330.4 - C <sub>21</sub> H <sub>30</sub> O <sub>3</sub> Jasmolin II: 374.5 - C <sub>22</sub> H <sub>30</sub> O <sub>5</sub>
Composition:	Pyrethrin content: 25 ± 0.5% w/w (PBK chemical method of analysis)
Appearance:	Liquid
Colour:	Clear, light yellow to dark yellow. Colour: non diluted extract: maximum 12 (Gardner scale), diluted extract (12.5, with kerosene): maximum 10 (Gardner scale)
Odour:	Flowery Odour
Boiling Point:	Pyrethrin 1: 170°C (0.1 mm Hg) Pyrethrin II: 200°C (0.1 mm Hg)
Density:	0.86 g/ml (at 20°C)
Vapour Pressure:	Very low = 2.7 mPa (pyrethrin 1) 5.3 x 10 <sup>-2</sup> mPa (pyrethrin 11) Volatility: Non-Volatile
Absorption Spectrum:	Unstable in UV light
Stability:	Unstable to air (oxidation) and to light. Rapidly hydrolysed in alkaline medium
Solubility in water:	Practically insoluble 0.2 ppm
Solubility inorganic solvents:	Easily soluble in most organic solvents insolubles in kerosene: maximum 0.08% w/v (PBK method)
Flash Point:	75°C (ISO 3679 closed cup).
Explosiveness:	Non explosive
Corrosive Properties:	Non corrosive

### TOXICOLOGICAL INFORMATION

Measured on the 50% total pyrethrin extract:

Acute oral LD <sub>50</sub> in rats (depending on sex)	700 - 2140 mg/kg.
Acute dermal LD <sub>50</sub> in rabbits	> 2000 mg/kg
Acute inhalation LC <sub>50</sub> (4h) in rats	3.4 mg/l of air
Dermal /ocular irritation in rabbits	Non-irritant
Dermal sensitisation in guinea pigs	Non-sensitising

### ECOTOXICOLOGICAL INFORMATION

Toxic to aquatic organisms and cold-blooded animals.

LC <sub>50</sub> (96 h) Rainbow trout	5.2 µg/l
Acute oral LD <sub>50</sub> in quail	> 2000 mg/kg
EC <sub>50</sub> (48h) <i>Daphnia</i>	12 µg/l

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### USES

Pyrethrum extract 25% pale is active on numerous insects, such as:

- houseflies, and other flies
- mosquitoes, midges, moths,
- wasps, hornets, fleas, lice, ticks
- cockroaches, earwigs, crickets, ants, bedbugs etc.

Thanks to its rapid action, low toxicity to man and warm-blooded animals, Pyrethrum extract attacks the insect's nervous system, thus generating instant muscular paralysis (knock-down). Pyrethrum extract can be used alone or in combination with other actives with kill effect, such as Bioresmethrin, Deltamethrin or Permethrin; it is generally combined with the synergist agent Piperonyl butoxide that greatly improves the (kill) effect, while being toxicologically harmless (the synergist agent can, in certain conditions, improve the efficacy of pyrethrins 2 to 3 times, thus reducing the cost price).

Pyrethrum extract is very widely used in numerous fields of application, in particular:

- household products
- public hygiene (surface or space treatments)
- animal health

### DOSAGE RECOMMENDATIONS

<b>Anti-mosquito coils</b>	0.3% w/w.
<b>Aerosols for domestic and industrial use</b>	1 to 0.3% w/w total Pyrethrins
<b>Concentrates for mist application or ULV treatments</b>	3 to 6 mg/m <sup>3</sup> against flying insects, 8 to 12 mg/m <sup>2</sup> against crawling insects

### PACKAGING

Pyrethrum 25% and 50% Pale Extract are supplied in the packaging described below:

25 kg PE Lined Mild Steel drums

### LABELLING

In accordance with the EEC norms relevant to the classification and the labelling of dangerous goods, pyrethrum is labelled with the following symbols and phrases.

Pyrethrum extract 25% pale is not classified.

Symbol: Xn  
Risk Phase: R20/21/22

The statements made in this Data Sheet are, to the best of our knowledge, as accurate as possible, are given only for information and are without guarantee or responsibility on our part regarding the various laws or patents in connection with the use of the product. Further information is available on request.