

# Campo Kinetin



**“Sun Aged Skin’s Anti-Oxidant for  
perceptive immediate Wrinkle  
Reduction”**



**CAMPO RESEARCH PTE LTD**

Level 30, 6 Battery Road, Singapore 049909

Tel: (65) 63833203 / 202 / 63833631

Direct Fax (65) 63833632 / 63834034

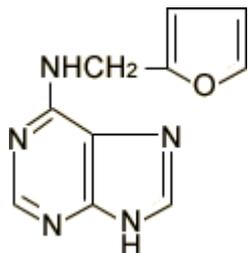
Email: [sales@campo-research.com](mailto:sales@campo-research.com) Website: <http://www.campo-research.com>

CAMPO® Multi-Purpose Cosmetic Base Chemicals & Active Ingredients

CAMPO® Novel Functional Active Cosmetic Ingredient & Raw Materials

## CAMPO KINETIN

INCI NAME:	KINETIN	
Molecular formula:	C <sub>10</sub> H <sub>9</sub> N <sub>5</sub> O	
Molecular weight:	215.21	
CAS:	<i>adenine, N-6 furfuryl</i>	
CAS NO#:	525-79-1	EINECS # 208-382-2
CAS NO#:	9001-54-1	EINECS # 232-614-1



### ***KINETIN (KINERASE, ADENINE, N6-FURFURYL)***

#### **Kinetin as the effective Active Ingredient for a “Sun Aged Skin’s Anti-Oxidant for preceptive immediate Wrinkle Reduction.”**

The available clinical evidence is that people taking kinetin all had better skin. In skin cells growth, kinetin delays damage that occurs over time. In animals, kinetin is produced by oxidative damage and seems to trigger several defenses against it.

There is reasonably good evidence for this, therefore, kinetin might protect against the damage caused by the sun, which is the main source of old-looking skin and which might cause damage via oxidation. Kinetin improves the skin’s ability to be a barrier against water loss.

A study was performed with three groups of subjects, taking either 1% kinetin (which is in Kinerase), 0.05% kinetin, and 0.01% kinetin. The effectiveness of kinetin can be demonstrated by the 1% group showing more improvement than the .01% group. Essentially all of the subjects reported improvement after 24 weeks. 92% reported an improvement in the texture of their skin, 80% reported an improvement in color, 75% improved in blotchiness, an 81% improved in fine wrinkles.

**Kinetin is physiologically extraordinary active in correcting skin-wrinkles due to aging.**

**Kinetin is now widely used in cosmetics as an Anti-wrinkle magic treatment ingredient.**

**Campo’s Kinetin is isolated from a natural source - Young Coconut endospermum and Young Coconut Juice**

## Kinetin from DNA

Kinetin was first synthesized chemically from DNA. It turns out that cells can follow this same route of synthesis (Barciszewski, 1997, FEBSL). Suppose DNA is oxidized. (Actually, there is a hydroxyl radical oxidation at the carbon 5' of the deoxyribose residue.) Oxidation is not good for the DNA. This oxidation creates a substance called furfural. Furfural is not good. However, furfural can be degraded to kinetin. This gets rid of the furfural, and the kinetin protects the DNA. According to Barciszewski, the kinetin initiates a repair sequence on the DNA (which is good).

This locates kinetin in the nucleus of the cell (where the DNA is). Barciszewski (1996) found kinetin in the cell outside the nucleus.

The hydroxylation comes from the hydroxyl radical, which usually comes from hydrogen peroxide, which usually comes from superoxide. This means that kinetin is produced in response to this class of free radicals, which are called the three oxides.

## Hydrogen Peroxide and Superoxide

To tie things together, if DNA is oxidized by the hydroxyl radical, which probably came from hydrogen peroxide, the breakdown product is converted to something that defends the cell against hydrogen peroxide.

If Kinetin was produced only from the oxidation of DNA, the defense against hydrogen peroxide would get started only once damage has occurred. Furthermore, presumably not that much kinetin would be produced. Barciszewski found kinetin outside of DNA (albeit in coconut). This suggests that the cell has other methods of producing kinetin, which are activated to fight against hydrogen peroxide.

Kinetin can also attach itself to copper, in which case it catalyzes the breakdown of superoxide to hydrogen peroxide (Goldstein, 1991, FRRC; Inoue, 1986, Barja, 1993, FRRC). Kinetin also directly stimulates SOD (superoxide dismutase), which also breaks superoxide down to hydrogen peroxide. (Kurepa, 1997, PCP). This may sound *primitively* backwards, but actually kinetin is making hydrogen peroxide. But it fits together in a way. Hydrogen peroxide is not as dangerous as superoxide, so this action is good. Meanwhile, hydrogen peroxide is often (usually) created from superoxide. So kinetin could be thought of as just generally reducing the activity of the three oxides.

## Skin

One theory of skin aging is that it is caused by free radicals. The free-radical theorists point their finger at the three oxides. And everyone agrees that ultraviolet radiation from the sun is the primary reason for skin looking old. Ultraviolet rays cause wrinkles, pigmented spots, and cancer.

Evidence demonstrates that UV radiation influences the three oxides. For example, one study (Maeda, 1991, PP) looked at the effects of exposing the hairless mouse to ultraviolet rays. SOD was increased after 6 weeks, but thereafter it steadily declined. [Glutathione peroxidase remained elevated.] SOD, as you might recall, protects the cell against superoxide by converting it to hydrogen peroxide.

In another study using constant UV radiation (Okada, 1994, JDS), SOD again was initially increased but then returned to normal levels. Catalase activity, however, was "suppressed." Catalase is an enzyme that converts hydrogen peroxide to molecular oxygen and water. Okada

suggests that continual exposure to UV radiation may overwhelm the capacity of the cell for eliminating hydrogen peroxide/superoxide.

## Conclusion

The evidence seems plausible that kinetin might protect the cell against damage from the three oxides. One view of aging in skin, which receives reasonable support, is that the three oxides cause aging. This is tied to the sun, because UV rays from the sun increase the three oxides.

Therefore, it is possible that applying kinetin to your skin would mobilize your skin's defenses against the three oxides. This might delay aging over time. It is suppose it might also provide some fast relief to beleaguered cells who were low in their defense against the three oxides.

**Kinetin (adenine, N-6 furfuryl)**, the active ingredient in **Campo Kinetin**, is a highly potent growth factor that, along with other plant-growth substances, promotes cell division and ensures orderly growth and development of plants. In a study published in Biochemical and Biophysical Research, kinetin delayed or prevented a range of cellular changes associated with in vitro aging of human skin cells, including alterations in cell morphology, growth rate, size, cytoskeletal organization, macromolecular synthetic activity and accumulation of lipofuscin aging pigments.

Equally important, the study showed that kinetin did not alter the maximum in vitro life span of human skin cells or their ability to multiply in culture. Thus, kinetin was devoid of activities associated with cellular immortalization, malignant transformation and carcinogenesis.



## **Campo Kinetin 75% Liquid for Cosmetic**



**Product No: 2001-03-02-1**

### **Product Specification**

Botanical Name:	Cocos nucifera L
Existing INCI Name:	Kinetin (and) Cocos Nucifera (Coconut) Fruit Extract
Parts used:	Freezed Dried Young Coconut Fruit Endospermum & Coconut Juice
INCI Name, Others:	<i>KINETIN</i>
Appearance:	Clear Flowing Liquid
Color:	Colorless to slight yellowish tint
Specific Gravity:	1.000 – 1.100
Refractive Index:	1.250 – 1.480
pH @20 deg.C (10% solution):	4.5. – 8.5
Water Content:	< 25%
Solubility:	Readily soluble in water
Uses:	Anti-Wrinkles Topical Treatment Cosmetics and Skin-Wrinkles Corrector Cosmetics
Usage Level:	0.001 - 10%

## Campo Kinetin Purum Powder for Cosmetics

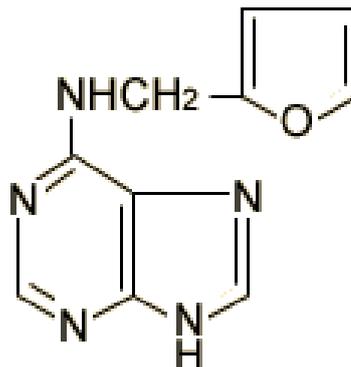
### **KINETIN**

**Adenine, N-6 furfuryl**

**Molecular formula: C<sub>10</sub>H<sub>9</sub>N<sub>5</sub>O**

**Molecular weight: 215.21**

**Product No: 2001-03-02**



### **Product Specification**

<b>INCI Name:</b>	<b>KINETIN</b>
<b>Botanical Name:</b>	Cocos nucifera L
<b>Parts used:</b>	Freezed Dried Young Coconut fruit Endospermum & Juice
<b>Properties:</b>	<b>White crystal or white crystalline powder,</b>
<b>Melting point:</b>	<b>266-276 Deg. C</b>
<b>Solubility:</b>	<b>Easily soluble in dilute acid (dilute Lactic Acid or weak Alpha-Hydroxy Acids) and dilute alkali, but hardly soluble in water, alcohol, ether and acetone.</b>
<b>Uses:</b>	<b>Anti-Wrinkles Topical Treatment Cosmetics and Skin-Wrinkles Corrector Cosmetics</b>
<b>Usage Level:</b>	<b>0.0005 - 1%</b>

### **Specifications:**

**Campo Kinetin 95%**  
**Assay: 95%**  
**Melting point: 258-260 deg C**  
**Loss on drying: 0.5%**

**Campo Kinetin 98%**  
**Assay: 98%**  
**Melting point: 262-264 deg.C**  
**Loss on drying: 0.3%**

**Packing: 10kg/drum**

**Monthly: 50kg/month**