

➤ The bacteria used for the process and isolated by the CEA is a ***rhizobium sp.*** living in the sunflower roots area through asymbiotic system.

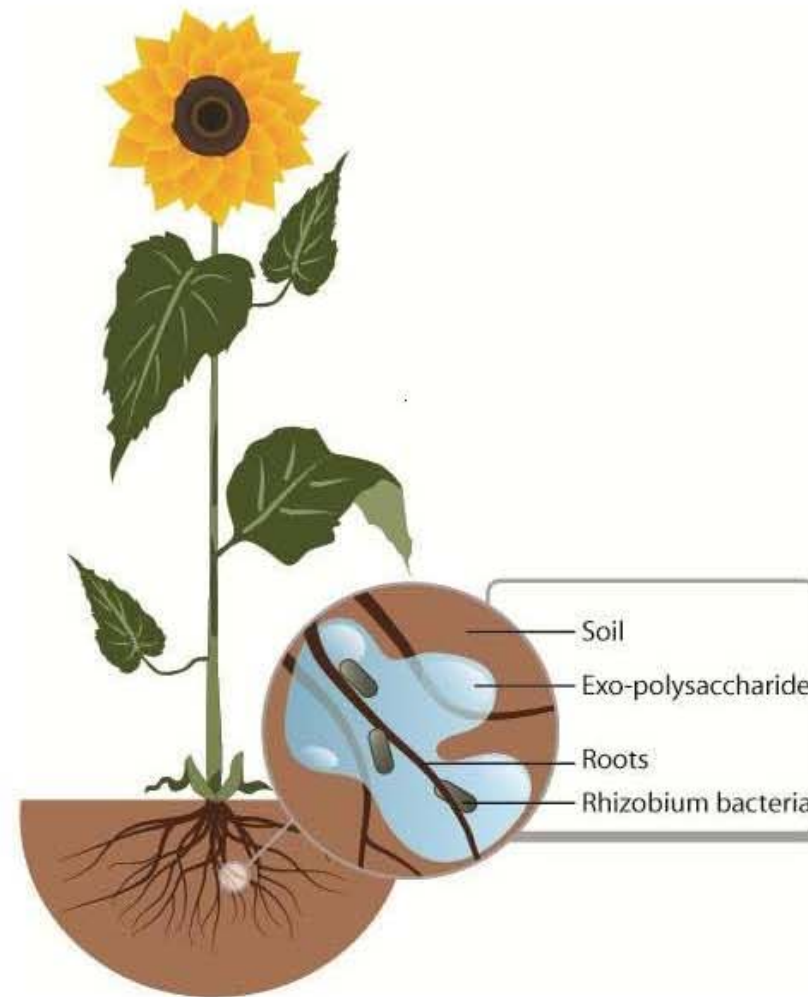
根瘤菌与向日葵根部是共生关系，生长在其根部周围。

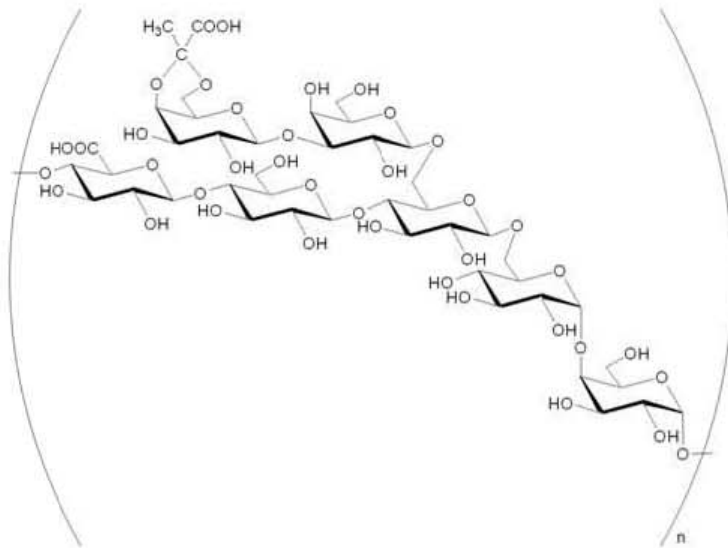
➤ During periods of drought, this bacteria enables the plants to survive by preventing their roots from being dehydrated.

在干旱时期，这种根瘤菌防止植物根部脱水而致死。

➤ The synthesized biopolymer draws up water present in the soil to keep a sufficient storage to the plant.

合成的生物聚合物，吸取土壤中的少量水份并储存起来，就像一层保湿薄膜，为植物根部保存了充足的水份。





➤ Soligel is a high molecular weight (>1MDa) polysaccharide.

根瘤菌胶是一种高分子量 (>1MDa)的多聚糖

➤ The primary structure contains the following repetitive units :

基本结构包含以下重复的单位:

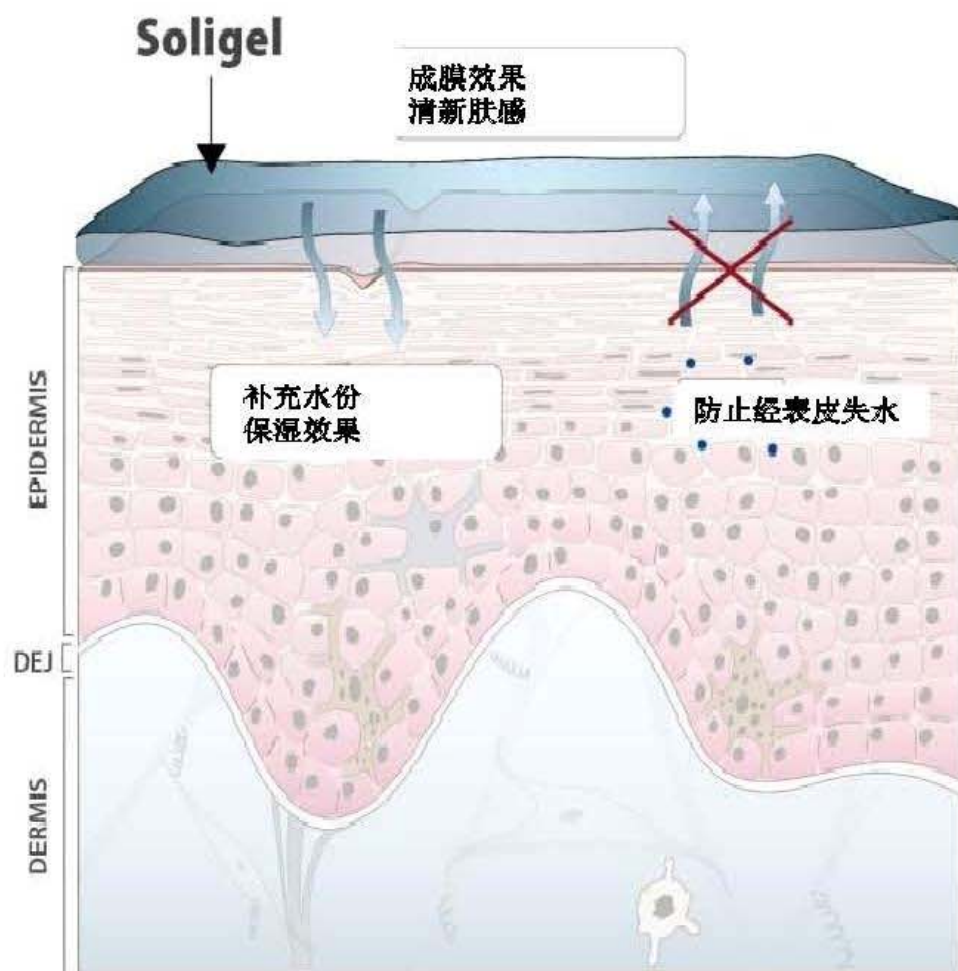
- 3 glucos units 3个葡萄糖单位
- 3 galactose units 3个半乳糖单位
- 1 glucuronic acid unit 1个普糖醛酸单位
- Substituents : 1 pyruvate & 1.6 acetyl

取代基: 1个丙酮酸酯 & 1.6个乙酰基

➤ The conformational structure of Soligel is a double helix like DNA and gives viscoelastic properties able to catch water while forming a solid gel (composed of 99% water)

根瘤菌胶的构象结构是像DNA一样的一个双螺旋形，产生的粘弹性能够吸取水份并形成一种固体凝胶（由99%水组成）。





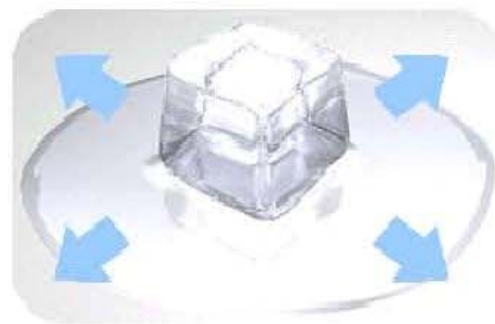
*Trans Epidermal Water Loss

As a high molecular weight biopolymer, it also limits transepidermal water loss.

作为一种高分子生物聚合物，它也能防止经表皮失水。

Like the stressed plant that is short in water supply, the skin is stressed. Rhizobium is the water reservoir such as Soligel for the skin.

植物会受到缺水的压力，皮肤也一样会受到这样的压力。如同根瘤菌是蓄水池一样，Soligel就是是皮肤的蓄水池。



成膜清新效果

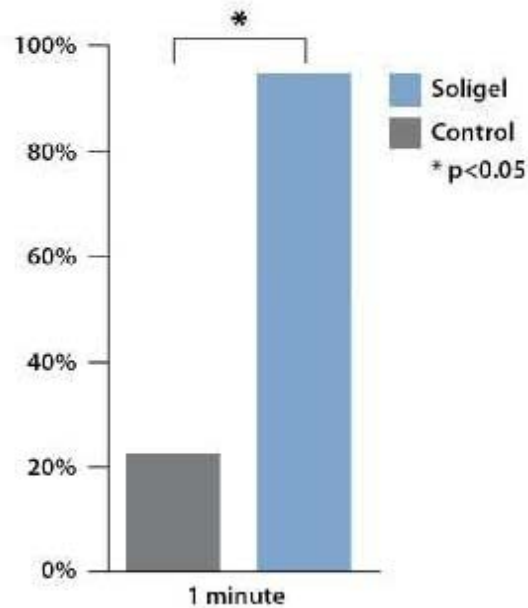
A filmforming fresh effect



Protocol (*In vivo* test)方案（体内测试）

The study was performed on a panel of 10 volunteers. They are treated on the inner forearm during 10 minutes with patches containing 2% of Soligel (96,8% aqua, 1,2 NaCl). The other inner forearm is not treated (control condition). Hydration was assessed by using a Corneometer CM 825 at $t=0$ (before application) at different times after application. The results are statistically treated by using ANOVA, the Fisher test and the Student test paired.

10名志愿者进行测试。他们在前臂内侧应用含2%Soligel(96.8%水,1.2%盐)的水膜10分钟。另外一只手作为空白组做比较。在应用水膜前或应用后的不同时间用Corneometer CM 825 at $t=0$ 测试皮肤水合度。测试结果用ANOVA(方差分析)统计处理。



Soligel is a flash moisturizer when formulated in patch, increasing skin moisture by 94%.

当应用在水膜时，Soligel 是一款即时的保湿剂，能增加皮肤94%的保湿度。



Soligel maintains skin hydration by delivering water to the skin according to its cutaneous needs.

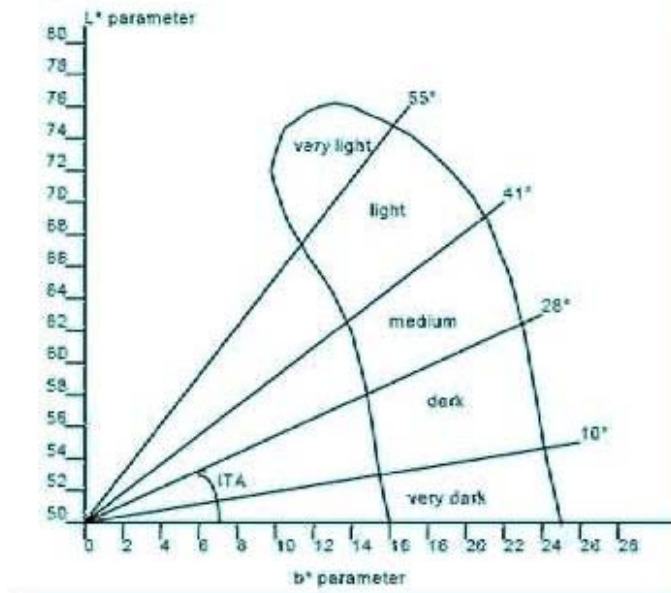
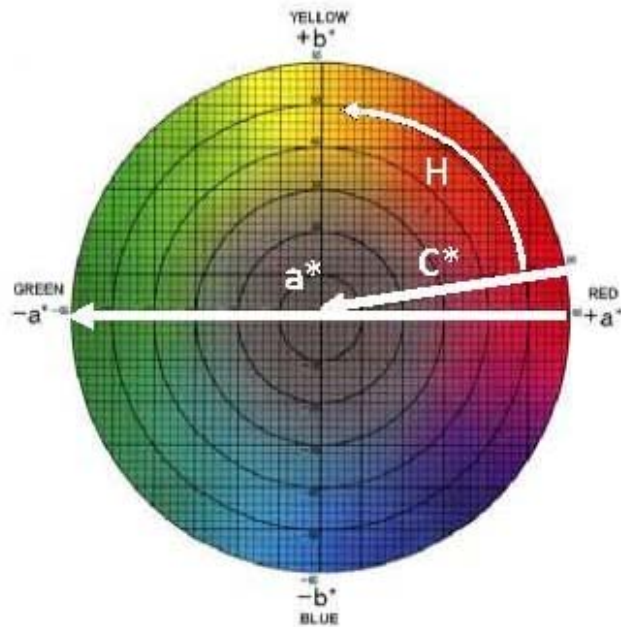
根据皮肤需求，Soligel通过给皮肤输送水份来维持皮肤的水合度。



Protocol (*In vivo* test)方案 (体内测试)

The study was performed on a panel of 27 volunteers with dark circles. They are treated during 10 minutes with patches (without support) containing 2% of Soligel (96,8% aqua, 1,2 NaCl). Coloration ($L^*a^*b^*$) was assessed by using a Chromameter CR200 (Observateur 2°, Illuminant D65). The results are statistically treated by using ANOVA, the Fisher test and the Student test paired.

27名有黑眼圈的志愿者进行测试。他们用含2%Soligel（96.8%水，1.2%盐）的水膜（无支架）处理10分钟。用色度计CR200分析颜色($L^*a^*b^*$)。用方差分析、Fisher测试和统计配对测试来分析结果。



Three values for colouration颜色的三个评价标准: L^* = Brightness明度, C^* = Saturation色饱和度 = $\sqrt{a^2 + b^2}$,

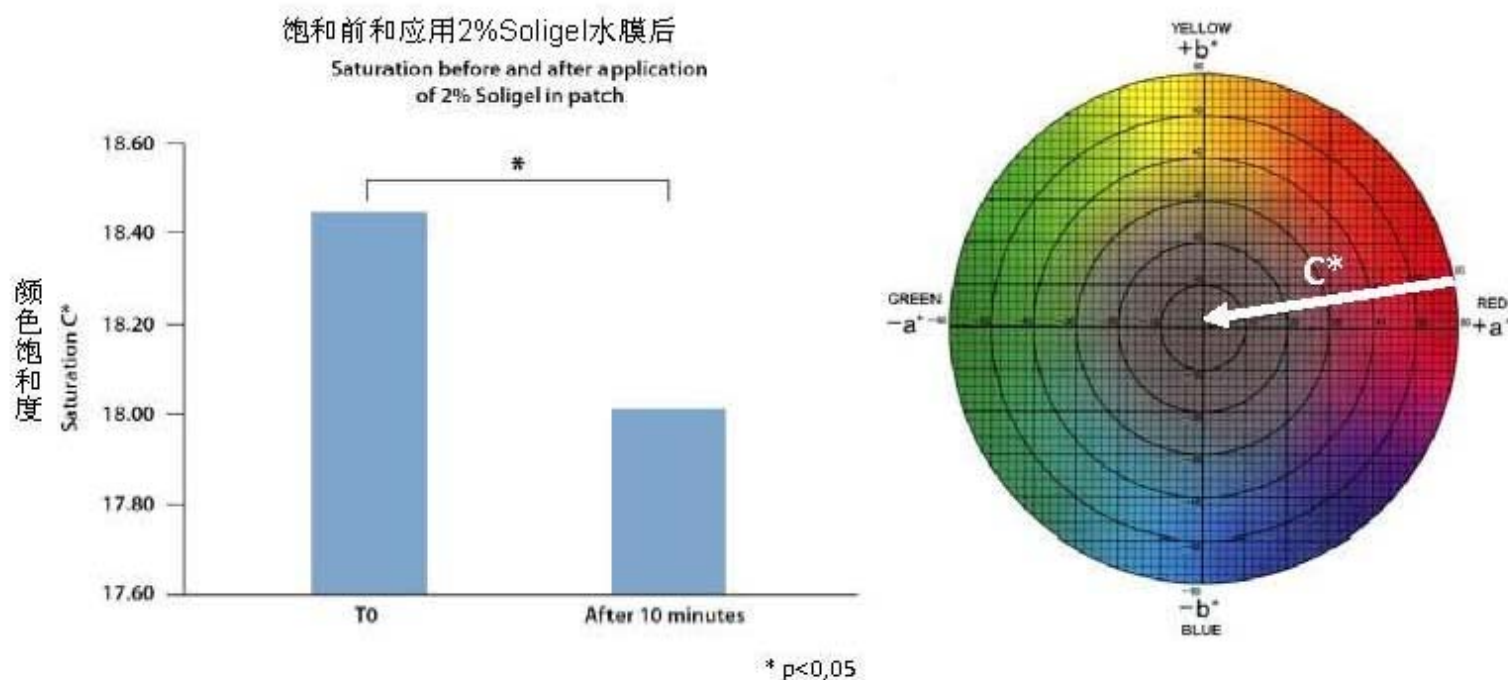
H = Shade阴影明暗度 = $\arctan b^*/a^*$

2 axes : a^* = green/red axe, b^* = yellow/blue axe

ITA° = Individual typological angle (or pigmentation degree) 色素沉淀程度 = $[\arctan ((L^* - 50) / b^*)] * 180 / \pi$

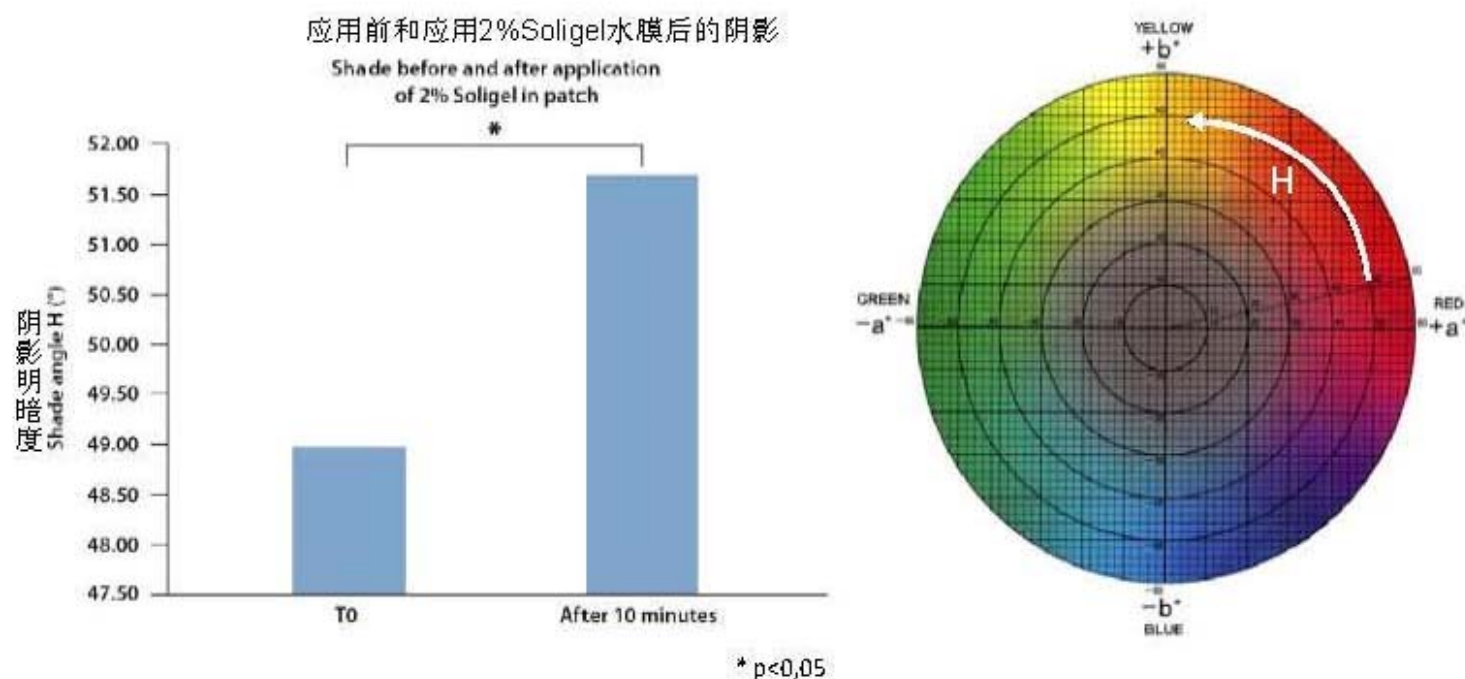
5 phototypes from I to V : very light ($>55^\circ$), light ($41^\circ - 55^\circ$), medium ($28^\circ - 41^\circ$), dark ($10^\circ - 28^\circ$) very dark ($<10^\circ$ C).





There is a significant reduction of
the color saturation of the skin by 6%
皮肤颜色饱和度明显地减少了6%



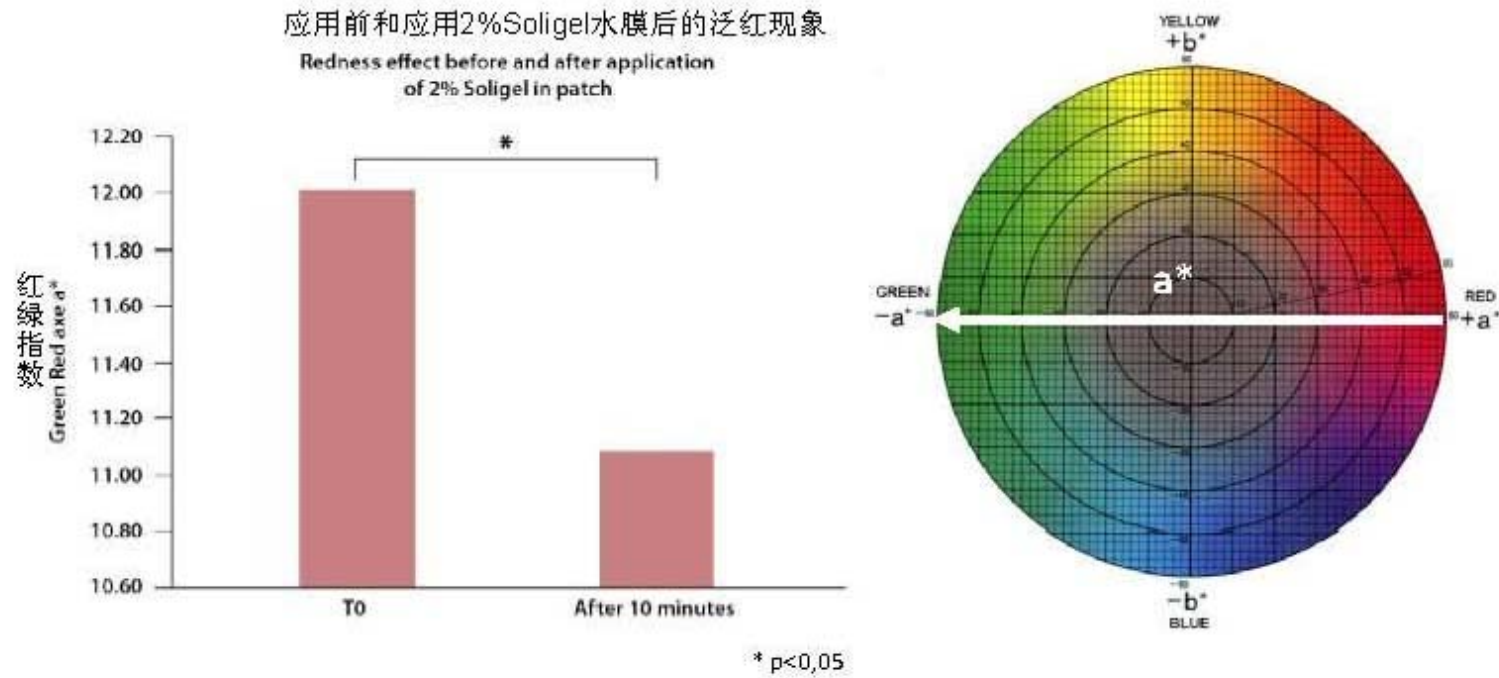


There is a significant reduction of the shade after 10 minutes

10分钟后，阴影明显地减少

Soligel brings the shade to lighter colors

Soligel将阴影颜色变浅



Soligel decreases the redness
of the skin by 8% after application
应用Soligel后，皮肤泛红减少了8%



Soligel powder
纯粉末



Soligel 1% gel solution
Clear and limpid
1%水凝胶溶液 清澈透明



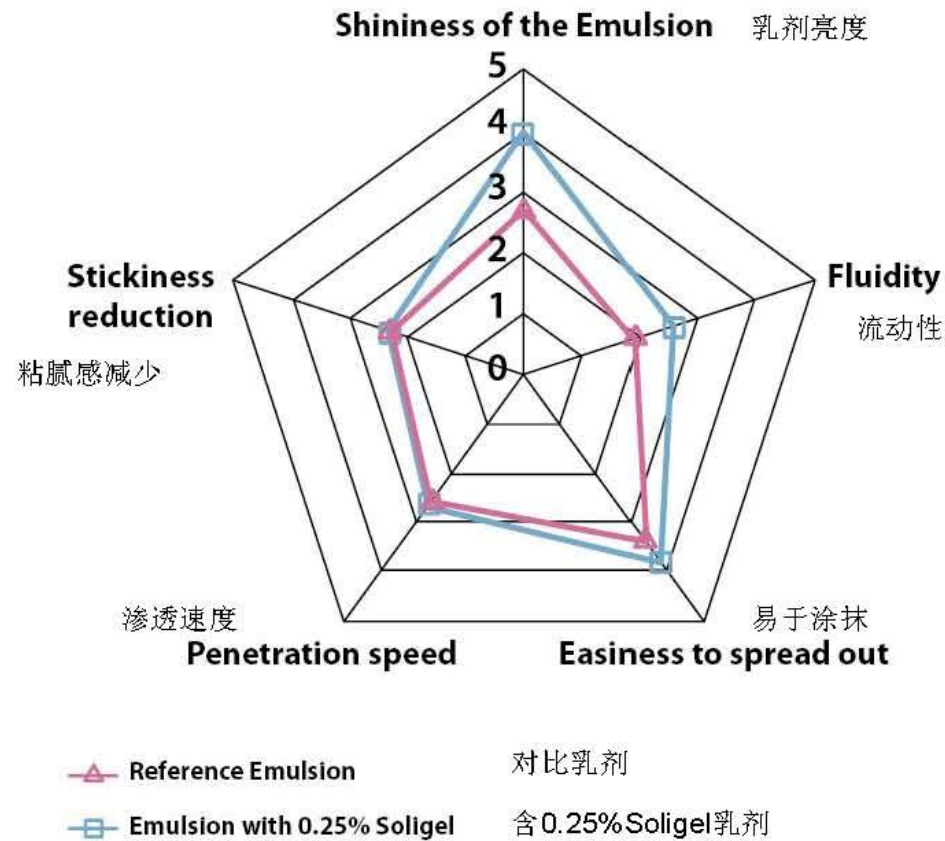
Soligel 0.3% viscous solution
Clear and limpid
0.3%水溶液 清澈透明



产品质感

Texture sensory improvement



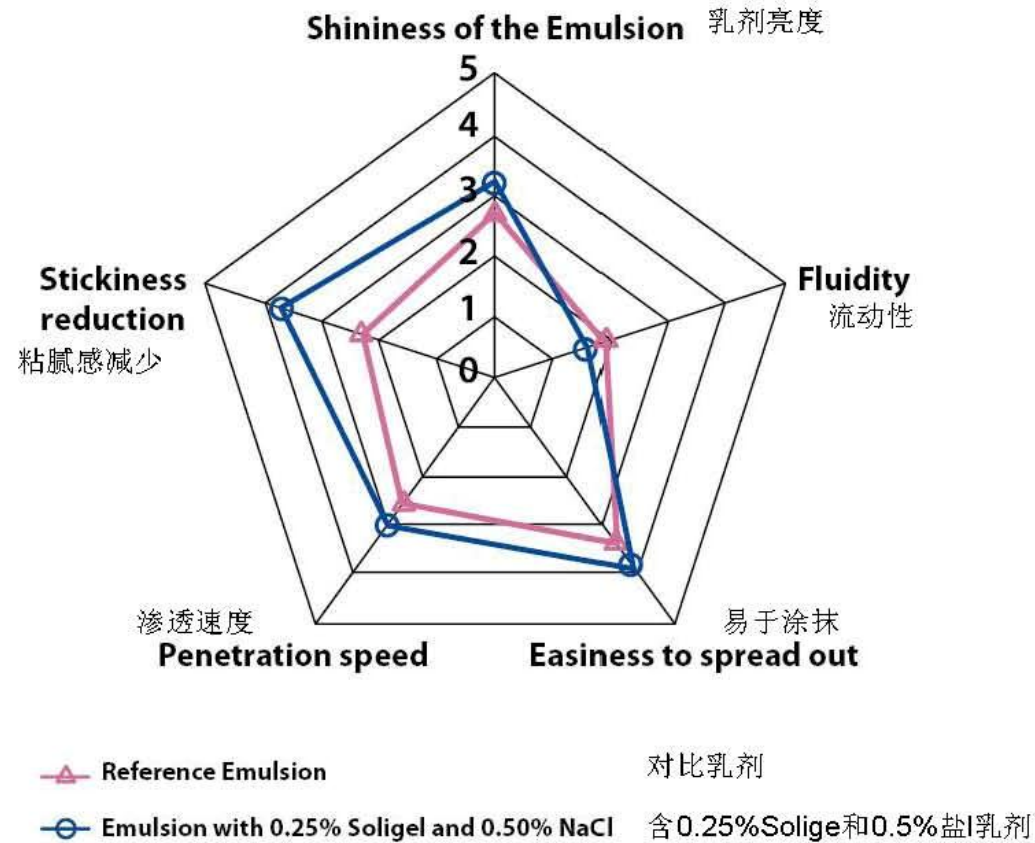


Soligel improves sensory characteristics of formulas.
It improves the appearance of the final products and some touching benefits.
Soligel改善配方的整体肤感。它能改善最终产品的外观和提供良好的肤感。

肤感测试

Sensory profile





Soligel improves sensory characteristics of formulas.
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INCI NAME: RHIZOBIAN GUM

INCI名称：根瘤菌胶

Aspect: White powder (liquid form with hyaluronic acid => Senshyal)

外观：白色粉末

Preservative: none

防腐剂：无

Dosage: 0,1 to 0.5%

用量：0.1~0.5%



Soligel



Soligel is a natural exopolysaccharide produced by fermentation with an incredibly touch and improvement of the sensory characteristics.

Soligel是通过发酵而来的天然多聚糖产品，拥有出色的肤感和改善产品肤感的特性。

Soligel is a flash moisturizer and provides a fresh lasting effect.

Used in patch, it reduces significantly the dark-circles while reducing the skin redness.

Soligel是一款的即时保湿剂和提供长久清新效果。应用在水膜片上，它能明显淡化黑眼圈，同时减少皮肤泛红现象。