EGF (Epidermal Growth Factor)
EGF (Epidermal Growth Factor)

- **Product No:** SC-1603;
- **INCI Name:** rh-Oligopeptide-1;
- **Function:** Anti-aging, Anti-wrinkle, healing the wound;
- **Application:** no-toxicity, can be used for skin, eye, lip and body;

**Function:**
- Reducing wrinkles and microgroove by activity the skin cell;
- Improve skin condition, Making the skin energetic and lively;
- Nourishing, smoothing, lighting skin and rejuvenation youth.
- Promoting skin cell grow, removing scar;
FUNCTION OF EGF

- EGF can stimulate Hyaluronic Acid biosynthesis.

- EGF can stimulate fibroblast reproducing and promote fibroblast to synthesis colleague and elastin, improving Epidermis cell grow and cell division.

- EGF can control most cell factor effect on skin and affect cell grow and cell division by controlling the producing time of the cell factors.
Effect of EGF in cell

- Epidermal Growth Factor + Epidermal Growth Factor Receptor
- Mitogen-activated protein kinase
- Transcriptional activation
- Cell growth
Application

- Anti-aging and anti-wrinkle products;
- A drug for Promoting wound healing;
- Promoting epidermis and granulation tissue (serious burning) rebirth;
Effective Data

- EGF – Molecular weight;

- Vitro test I – Fibroblast SRB test;
- Vitro test II – Cellular morphology test: EGF effect on NIH3T3 cell;
- Vitro test III – Cell (NIH3T3) Migration Test;
- Vitro test IV – EGF can improve the level of hyaluronani acidinkeratinocyte;

- Vivo tests I– EGF improve the smooth of skin;
- Vivo tests II – EGF reduce the depth of wrinkle;
- Vivo tests III – After 21 days, EGF improve degree of elasticity and tonic;
EGF (Epidermal Growth Factor)

EGF (Molecular weight)

EGF is a hydorpe protein, it is composed by 53 amino acid, molecular weight is 6200 Da.
In Vitro Test I

† Fibroblast SRB test by color concentrates at 590nm
† EGF can promote cell grow as EGF dosage increase

Mice fibroblast (NIH3T3) are dealed by EGF in cell medium without plasma, testing after 72 hours
Vitro Test II

- Cellular morphology test: EGF effect on NIH3T3 cell
- EGF can promote cell grow as EGF dosage increase

Mice fibroblast(NIH3T3) are dealt with EGF(100pg/ml) in cell medium without plasma, after 72 hours, cellular morphology changed.
Vitro Test III

↑ Cell (NIH3T3) Migration Test

Migration of cell increase which are dealed by EGF
EGF can improve the level of hyaluronic acid in keratinocyte.

As the dosage of EGF add, levels of Hyaluronan, Heparan sulfate, Chondroitin/Dermatan sulfate are all improved.
InVivo tests

Invivo tests I  Invivo tests II  Invivo tests III

untreatment contain 0.5%  placebo  contain 0.5%  placebo  contain 0.5%  placebo

EGF improve the smooth of skin  After 4 weeks, depth of wrinkle is reduced by 30%  After 21 days, EGF improve degree of elasticity and tonic
EGF is very stable in cream, lotion, essence.

It should be added in formulation at below 40°C.

1. O: Stable
2. V: Slight delamination
3. X: Delamination and precipitation
<table>
<thead>
<tr>
<th>Classify</th>
<th>Number</th>
<th>Product Name/INCI Name</th>
<th>%</th>
<th>Suppliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A phase</td>
<td>1</td>
<td>Steareth-2</td>
<td>2.00</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Steareth-21</td>
<td>2.0</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Cetearyl alcohol</td>
<td>1.50</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>C12-15 Alkyl Benzoate</td>
<td>4.00</td>
<td>Finetex</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Shea Butter</td>
<td>2.50</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Tocopheryl Acetate</td>
<td>1.00</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Butylated Hydroxytoluene</td>
<td>0.05</td>
<td>Merck</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Phenoxyethanol&amp;Methylparaben&amp;Ethylparaben&amp;Butylparaben&amp;Propylparaben&amp;Isobutylparaben</td>
<td>0.80</td>
<td>Clariant GMBH</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Dimethicone</td>
<td>0.5</td>
<td>Dow Corning</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Vaseline</td>
<td>4.0</td>
<td>SC</td>
</tr>
<tr>
<td>Classify</td>
<td>Number</td>
<td>Product Name/INCI Name</td>
<td>%</td>
<td>Suppliers</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>------------------------</td>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>B phase</td>
<td>1</td>
<td>Aqua</td>
<td>To100</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Hydroxyethyl Urea</td>
<td>5.0</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Allantoin</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Xanthan Gum</td>
<td>0.15</td>
<td>SC</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Glycerin</td>
<td>6.00</td>
<td>t</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Disodium EDTA</td>
<td>0.05</td>
<td>SC</td>
</tr>
<tr>
<td>C phase</td>
<td>1</td>
<td>Hyaluronic Acid (1 %)</td>
<td>3.00</td>
<td>SC</td>
</tr>
<tr>
<td>D phase</td>
<td>1</td>
<td>Fragance</td>
<td>q.s</td>
<td>Cognis</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Epidermal Growth Factor</td>
<td>0.4mg/100g</td>
<td>SC</td>
</tr>
</tbody>
</table>

**Procedure:**
1. Heat part A and part B to 80°C.
2. When both the same temperature add part B to part A under agitation.
3. Down to 60°C, Add the part C under agitation and homogenization. Below 45°C, Then add part D to it under agitation (Use a small amount of deionized water after dissolving EGF to join.)
4. Cool down the emulsion to room temperature while stirring.
EGF (Epidermal Growth Factor)

**Specification:**
- **Appearance:** White frozen dry mass
- **Molecular weight:** 6200 Dalton
- **Purity:** ≥95% (SDS-PAGE)
- **Iso-electric point:** 4.6

**Dosage:**
- 1mg EGF is equivalent to 760,000IU; 0.1mg EGF is equivalent to 76,000IU.
- Eye cream: 2000—2500IU/ml;
- Day cream: 1000—1500IU/ml;
- Night cream: 1500—2000IU/ml;
EGF (Epidermal Growth Factor)

9. Package

9.1 Packing:
1.0mg ampoule or tiny bottle pack;

10. Storage

Permanent storage at -20°C; avoiding repeated freezing and melting;

Shelf life:
3 years;

The above information is provided by the Spec-Chem Industry Co., Ltd. The main purpose is to facilitate the use of cosmetics product development professional and technical personnel. The reliability of the information the user should be based on their knowledge and ability to make judgments, and can be modified accordingly within a reasonable supplement to this all the consequences. Spec-Chem Industry Co., Ltd. does not assume any responsibility.