APPLICATIONS & RECOMMENDED DOSAGE

Canadian Willowherb™ is a multifunctional extract that can be used in many different cosmetic formulations. It has been engineered to meet the highest standards of the cosmetics industry and yield multiple benefits to its users.

Recommended dosage: 1 - 3%
Recommended pH level: 4.3 - 5.5

Applications:
> Anti-acne
> Skin soothing
> Anti-redness
> Hair growth
> Sun care
> Baby care
> Sensitive skin
> Postdermatological treatment

SPECIFICATIONS

Canadian Willowherb™

INCI name: Water (1) (and) Epilobium Angustifolium Flower/Leaf/Stem Extract (2)
CAS: 7732-18-5 (1), 90028-31-2 (2)
EINECS: 231-791-2 (1), 289-821-5 (2)

Anti-acne cream

<table>
<thead>
<tr>
<th>Phase</th>
<th>Trade name</th>
<th>Supplier</th>
<th>INCI name</th>
<th>%WW</th>
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<tbody>
<tr>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Water</td>
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<td>Aqua</td>
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<tr>
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<td>Glycerin</td>
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<td>Glycerin</td>
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<tr>
<td></td>
<td>Glucam™ E-20</td>
<td>Lubrizol</td>
<td>Methyl Gluceth-20</td>
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<td>Giba</td>
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<td>B</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Schercemol™ GO</td>
<td>Lubrizol</td>
<td>Cetyl Ethylhexanoate</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>UCON Fluid AP</td>
<td>Dow</td>
<td>PPG-14 Butyl Ether</td>
<td>6</td>
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<tr>
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<td>Lipex Shea WM</td>
<td>AAK</td>
<td>Shea Butter Cetyl Esters</td>
<td>4</td>
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<tr>
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<td>Kobo</td>
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<td>Eisai</td>
<td>Tocopherol</td>
<td>0.1</td>
</tr>
<tr>
<td>C</td>
<td></td>
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<tr>
<td></td>
<td>Neomekkins-M16</td>
<td>Ueno</td>
<td>Phenoxethanol (and) Menthol (and) Ethylparaben (and) Butylparaben (and) Propylparaben (and) Isobutylparaben</td>
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<tr>
<td></td>
<td>Kolarem PS 100 ppm</td>
<td>Unipex</td>
<td>Aqua (and) C16-18 Diol Ester (and) Tripeptide-1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Canadian Willowherb 5% Clear</td>
<td>Unipex</td>
<td>Epilobium Angustifolium Flower/Leaf/Stem Extract (and) Aquas</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Perfume Eclat 350</td>
<td>Sentaromatique</td>
<td>Fragrance</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>Sodium hydroxide (10% sol.)</td>
<td>Interchim</td>
<td>Sodium Hydroxide/Aqua</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Mixing procedure
1. At room temperature and under agitation, introduce Phase A ingredients.
2. Phase B: Mix all ingredients without heating.
3. Under agitation, add Phase B to Phase A and maintain agitation until uniform.
4. Add Phase C ingredients one at a time under gentle agitation.
5. Adjust pH to 4.5 – 5.0.

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France  Tour Franklin, La Défense 8, 92042 Paris La Défense Cedex  Tel.: +33.1.47.32.81.30  Fax: +33.1.41.96.22.03

The Native American soothing ingredient
Since time immemorial, Native Americans have used liquid extracts from Canadian Willowherb\textsuperscript{TM} (Epilobium angustifolium) for numerous applications such as an intestinal astringent, healing burns and soothing skin irritations. Canadian Willowherb\textsuperscript{TM} (CW) comes from Northern Canadian Prairies plants that have developed strong physiochemical properties to survive the harsh climate. Epilobium angustifolium is a fire succession plant which means it is among the first plants to regrow after a fire. The plants used for Canadian Willowherb\textsuperscript{TM} are harvested manually by local communities in the Northern Canadian Prairies.

Canadian Willowherb\textsuperscript{TM} contains bioactive molecules such as cotenol B which has \textalpha;-reductase inhibitory activity, anti-oxidant and anti-bacterial properties. Canadian Willowherb\textsuperscript{TM} is a multifunctional active. Its primary function is as a non-steroidal anti-irritant ingredient. In vitro experiments have demonstrated free radical scavenging ability. In addition, Canadian Willowherb\textsuperscript{TM} shows strong antibacterial activity on \textit{P. acnes}. Its anti-irritant (redness reduction) properties have been clinically demonstrated, showing a strong reduction of skin redness induced by chemicals or UV exposure within 30 minutes of use.

**IN VITRO EFFICACY**

**Antimicrobial effect**

*Efficacy on \textit{P. acnes} growth*

Canadian Willowherb\textsuperscript{TM} inhibits \textit{P. acnes} growth, the main bacteria involved in acne condition.

**Effect on free radicals**

*Superoxide free radical absorption*  

Canadian Willowherb\textsuperscript{TM} reduces the formation of free radicals like superoxide and peroxyl, thus reducing damages endured by oxidative stress.

**Peroxyl radical absorption**

**CLINICAL EFFICACY**

**Effect on skin irritation**

**Test protocol**

- 8 consumers (women, aged 18 to 60) with skin types I-II  
- Application of 15% lactic acid for 4 hours to induce redness and irritation  
- Application of 3% Canadian Willowherb\textsuperscript{TM} or 1% hydrocortisone lotion  
- Redness measurement after 30 minutes, 1 hour, and 24 hours. (\textsuperscript{a}value determination using chromametry)

**Efficacy on chemically induced skin erythema**

Canadian Willowherb\textsuperscript{TM} reduces skin redness within 30 minutes of use and has better results than the reference anti-irritant agent hydrocortisone.

**Effect on UV-induced erythema**

Canadian Willowherb\textsuperscript{TM} reduces skin redness induced by UV exposure.

**Effect on acne-prone skin**

**Test protocol**

- 63 consumers, 18 to 40 years old, with acne-prone skin (not taking an anti-acne treatment during the study)  
- Application of the "anti-acne cream" with 2% Canadian Willowherb\textsuperscript{TM} and 2% Kollaren, twice daily during 8 weeks

**Test results**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Results after 8 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>The skin is not shiny</td>
<td>76%</td>
</tr>
<tr>
<td>The skin is smoother</td>
<td>72%</td>
</tr>
<tr>
<td>The product leaves the skin more beautiful</td>
<td>72%</td>
</tr>
<tr>
<td>The skin looks healthier</td>
<td>70%</td>
</tr>
<tr>
<td>The skin is matt</td>
<td>64%</td>
</tr>
</tbody>
</table>

Consumers agree that acne spots are less visible for a mattified, smoother, and healthier looking skin.
IN VITRO EFFICACY

Antimicrobial effect

Effect on P. acnes growth

Canadian Willowherb® inhibits P. acnes growth, the main bacteria involved in acne condition.

Effect on free radicals

Superoxide free radical absorption

Peroxyl radical absorption

Canadian Willowherb® reduces the formation of free radicals like superoxide and peroxyl, thus reducing damages induced by oxidative stress.

CLINICAL EFFICACY

Effect on skin irritation

Test protocol
- 8 consumers (men, aged 18 to 60) with skin types III
- Application of 15% lactic acid for 4 hours to induce redness and irritation
- Application of 3% Canadian Willowherb® or 1% hydrocortisone lotion
- Redness measurement after 30 minutes, 1 hour, and 24 hours. (t* value determination using chromametry)

Efficacy on chemically induced skin erythema

Canadian Willowherb® reduces skin redness within 30 minutes of use and has better results than the reference anti-irritant agent hydrocortisone.

Test protocol
- 7 consumers (women, aged 18 to 60) with skin types III
- Application of 3% Canadian Willowherb® or placebo 24 hours after UV irradiation (1.5 X MED)
- Redness measurement after 4 hours. (t* value determination using chromametry)

Efficacy on UV-induced erythema

Canadian Willowherb® reduces skin redness induced by UV exposure.

Effect on acne-prone skin

Test protocol
- 63 consumers, 18 to 40 years old, with acne-prone skin (not taking an anti-acne treatment during the study)
- Application of the “anti-acne cream” with 2% Canadian Willowherb® and 2% Kollaren®, twice daily during 8 weeks

Test results

Benefits

Results after 4 weeks

The product removes excess sebum
82%

The product provides a freshness sensation
80%

The skin is clearer
72%

The product prevents the occurrence of blemishes
72%

The product reduces impurities
68%

Benefits

Results after 8 weeks

The skin is not shiny
76%

The skin is smoother
72%

The product leaves the skin more beautiful
72%

The skin looks healthier
70%

The skin is mattified
64%

Consumers experience a reduction in blemishes and their skin is clearer in just 4 weeks.

Consumers agree that acne spots are less visible for a mattified, smoother, and healthier looking skin.
**APPLICATIONS & RECOMMENDED DOSAGE**

Canadian Willowherb™ is a multifunctional extract that can be used in many different cosmetic formulations. It has been engineered to meet the highest standards of the cosmetics industry and yield multiple benefits to its users.

**Recommended dosage:** 1 - 3%

**Recommended pH level:** 4.3 - 5.5

**Applications:**
- Anti-irritant
- Skin soothing
- Anti-acne
- Anti-redness
- Baby care
- Sensitive skin
- Hair growth
- Sun care
- Men care
- Postdermatological treatment

**SPECIFICATIONS**

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**Mixing procedure**
1. At room temperature and under agitation, introduce Phase A ingredients.
2. Phase B: Mix all ingredients without heating.
3. Under agitation, add Phase B to Phase A and maintain agitation until uniform.
4. Add Phase C ingredients one at a time under gentle agitation.
5. Adjust pH to 4.5 – 5.0.

**Product properties**
- Aspect: thixotropic cream-gel
- pH = 4.5 – 5.0
- Stability: 1 month at 45°C/3 months at 40°C

**Anti-acne cream**

<table>
<thead>
<tr>
<th>Phase</th>
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<th>Supplier</th>
<th>INCI name</th>
<th>% WW</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Water</td>
<td>Aq½</td>
<td>Glycerin</td>
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<td>Glycerin</td>
<td>Unipex</td>
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<td>Tinovis CD</td>
<td>Ciba</td>
<td>Dimethylsulfoxide/ethyltrimonium chloride/Methacrylate Copolymer (and) Propylene Glycol Dicaprate/Dicaprate (and) PPG-1 Trideceth-6 (and) C10-C11 Isocaprin</td>
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<tr>
<td>B</td>
<td>Schercemol™ GO</td>
<td>Lubrizol</td>
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<td>Dow</td>
<td>PEG-14 Butyl Ether</td>
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<td>4H3/Trimethyl Hexadimethone Copolymer (and) C10-16 Acid</td>
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<td>5T</td>
<td>Tocopherol</td>
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<tr>
<td>C</td>
<td>Neomekkins-M1®</td>
<td>Ueno</td>
<td>Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Butylparaben (and) Propylparaben (and) Isobutylparaben</td>
<td>0.7</td>
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<td>Aqua (and) Dextran (and) Tripeptide 1</td>
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<tr>
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<td>Canadian Willowherb 5% Clear</td>
<td>Aq½</td>
<td>Epilobium Angustifolium Flower/Leaf/Stem Extract (and) Aqua</td>
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<td>Sodium hydroxide (10% sol.)</td>
<td>Interchim</td>
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