



Spec-Chem Ind.

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Arbutin

A. Technical Data Sheet

B. Effect of Arbutin in whiten cosmetics

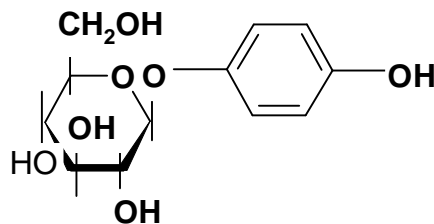
C. Summary on Safety Evaluation on Human Body

D. Formulation



A. Technical Data Sheet

INCI Name:	Arbutin
Product Code:	SC-2180
Chemical Name:	4-hydroxyphenyl β-D-glucopyranoside
CAS No.:	497-76-7
EINECS:	207-850-3
Molecular Formula:	C ₁₂ H ₁₆ O ₇



Biological Activity

- I Preventing activity of tyrosinase and formation of melanin, whitening by combining with tyrosinase and accelerating melanin being resolved and excreted.
- I Improving the elasticity of the skin, maintaining skin moisture and delaying aging.
- I Dispel spot, such as freckle, chloasma, acne and age pigment.

Cosmetic Application

Arbutin is an ideal additive ingredient in functional whitening cosmetics. It can effectively restrain the melanogenesis. After application of the cosmetics which are formulated with certain amount of Arbutin, the senile yellowish brown plaque and pigmentation can evidently be diminished.

Use Level:

Recommendatory amount of usage: 1-10%

Main Specification:

Appearance: White to light yellow powder

Melting point: 198-201C

Optical rotation [α]_{20D}: -63 to -67°(C=3)

Assay (HPLC): not less than 9.5%

Hydroquinone(HPLC): 0

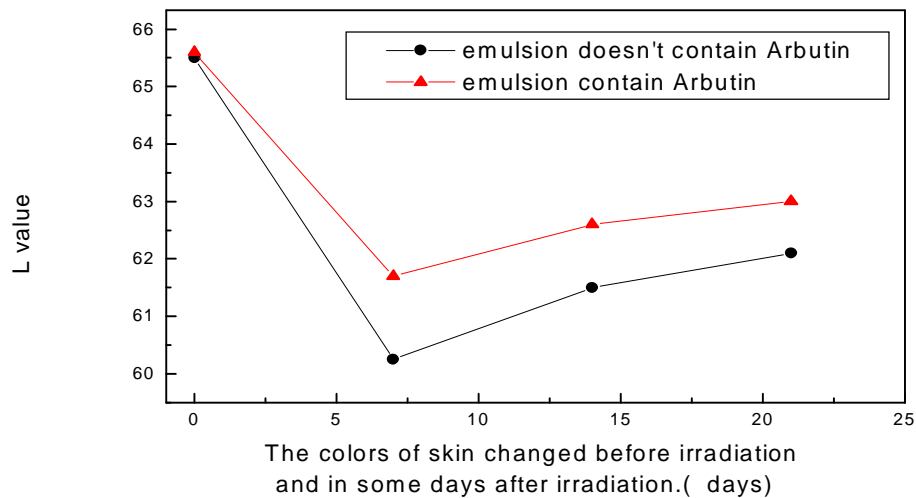
PACKAGING:

1.0kg Aluminum foil bag.



B. Effect of Arbutin in whiten cosmetics

Add Arbutin into the whiten cosmetics and do the test on human body by the double blind check methods. One emulsion contains Arbutin and the other one doesn't contain Arbutin. The result was shown in fig1.



[Methods: A tristimulus photocolormeter is acceptable, L was examined as the parameters of skin color. L value represents lightness or darkness]

Fig1. How did the colors of skin changed with the emulsion contain Arbutin and the emulsion without contain Arbutin.

The test about the emulsion of Arbutin was used on the bodies of 38500 Chinesees.

Statistically analyses the result and get the fig 2 and fig3. The effective is 82.35 percent.

Fig4 is main items of the appraisalment after usage.

	Much satisfaction	Satisfaction	No satisfaction
Dun	28.1%	57.2%	14.7%
Liver spots	22.9%	47.3%	29.8%
Freckles	15.3%	35.7%	49.0%

Fig 2. The property of study objects



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Much effective	Effective	No effective
7.5%	74.8%	17.7%

Fig3. The appraise after usage

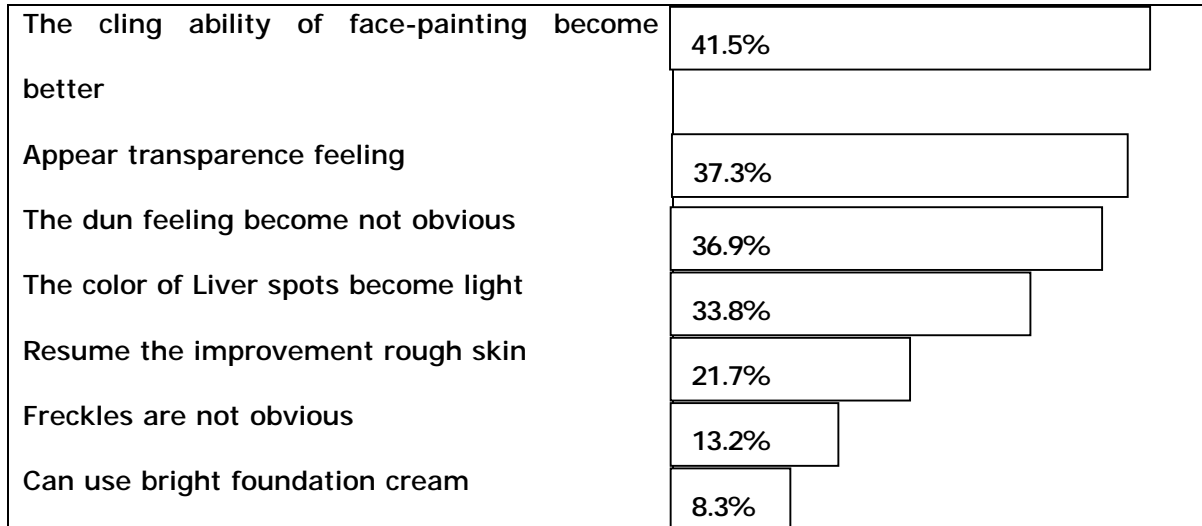


Fig4. Main items of the appraisal after usage



C. Summary on Safety Evaluation on Human Body

1. Provocative patch test of human body

Testing date: April 1994. Reporting date: May 1994.

Subject: 25 healthy adult volunteer, male 12, female 13, age 22-54.

Materials: 5% Arbutin solution from SPEC CHEM IND..

Method: According to the Testing method described in GB 7919-87.

Results: No obvious skin reaction in 25 subjects during the whole courses of arbutin's induction, intermediate resting, and exciting periods as well as 24、48、72 hours after exciting. So arbutin may be recognized as non-sensitivity.

2. Acute skin irritation test

Testing date: November 1995. Reporting date: November 1995.

Subject: 33 healthy adult volunteer, male 13, female 20, age 22-54.

Materials: 10% Arbutin solution from SPEC CHEM IND.

Method: According to the Testing method described in GB 7919-87.

Results: Skin irritation index is 0. So arbutin has no irritation on skin.



D. FORMULATION

1. ANTI--FRECKLE LOTION (O/W)

SC-GF002

	Trade Name	Chemical Name	Dosage (%)	Supplier
A	Brij 72	Steareth-2	2.00	Uniqema
	Brij 721	Steareth-21	2.00	Uniqema
	Lanette MY	Cetearyl alcohol	0.50	Cognis
	DC200/350 cs	Dimethicone	0.50	Dow Corning
	dl-alpha-tocopheryl Acetate	Tocopheryl Acetate	1.00	DSM
	Finsolv TN	C12-15 Alkyl Benzoate	4.00	Finetex
	Cetiol SB45	Sea Butter	2.00	Cognis
	Butylated Hydroxytoluene	BHT	0.05	Merck
	Phenonip	Phenoxyethanol&Methylparaben&Ethylparaben&Butylparaben&Propylparaben&Isobutylparaben	0.80	Clariant GMBH
	SC-2141	Kojic Acid Dipalmitate	1.5	SC
B	Water	Aqua	72.60	
	Carbopol Ultrez 20	Acrylates/C10-30 Alkyl Acrylate Crosspolymer	0.15	Noveon
	1,3-Butylenglykol	Butylene Glycol	3.00	Merck
	Edeta BD	Disodium EDTA	0.10	BASF
C	Water dem.	Aqua	5.00	
	SC-2180	Arbutin	2.00	SC
D	Tea (10%)	Triethanolamine	0.80	
E	SC-7110	Hyaluronic Acid (1 %)	2.00	SC

Procedure:

1. Heat part A and part B to 85°C.
2. When both the same temperature add part B to part A under agitation.
3. Add the solution of part C under agitation and homogenization. Then add part D to it under agitation.
4. Add the solution of part E under agitation at 55°C.
5. Cool down the emulsion to room temperature while stirring.



2. Formulary 2

1. Emulsifying agent (O/W)	1.5
2. C16-C18 alcohol	5.0
3. Glycerol mono stearate	1.5
4. White oil	12.0
5. Isopropyl palmitate	3.0
6. Dimeticone	2.0
7. Arbutin	3.0
8. EDTA	0.1
9. Sodium pyrosulfite	0.2
10. Glycerin	12.0
11. Glydent	0.05
12. Kathon	0.05
13. Essence	0.2
14. Deioned water	add to 100.

Procedure:

1. Dissolve 7 ,8, 9 in some water
2. Heat 1,2,3,4,5,6 , as oil phase, to 90°C
3. Heat 10,14 ,as water phase, to 90°C
4. Pump oil phase from step 2 into emulsifying vessel , then, under stir, pump slowly water phase from step 3 into the above vessel, finally, add 11 to the above mixture. Homogenize for 3 minutes, cool with cooling water.
5. After temperaturer cool to 60°C, pump the solution from step 1 into the above homogeneous liquid, continue to cool to below 50°C, add 12 and 13, form paste at about 45°C, continue stirring till 40°C, stop cooling water,give out vacumm,
Stop stir, discharge the product.

3. Formulation of Gel (Arbutin 7%)

	#1(%)	#2(%)
1. Deionized water	86.0	76.0
2. Carbopol 940	1.0	1.0
3. Glycerin	5.0	5.0
4. Algae emollient serum (SC-8109)	-	10.0
5. Arbutin	7.0	7.0
6. Tween 20	1.0	1.0
7. Essence	0.02	0.02
8. cy-1	0.05	0.05
9. Acid blue 7	-	Tittle
10. Triethanolamine	0.6	0.6



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100.67

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Operation:

1. 1-4, blending for 30 minutes
2. Add 5, heating up to 80°C, until the Arbutin dissolved.
3. Add 6-9, blending till homogeneous
4. Lay for 4-24 hrs, add 10 when bladders disappeared

#1, handles oily

#2, handles slippery