

Troubleshooting Guide for Common Problems in Full Scenario Application of Litsea Cubeba Oil from HiSiaddi

Full Scenario Formula Manual for Litsea Cubeba Oil

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Applicable Industries: Fragrance Chemical Industry, Food Industry, Daily Chemical Personal Care, Disinfection & Bacteriostasis, Agricultural Warehousing, Aromatherapy

Supporting Documents: TDS/COA/MSDS, Application Manual, Fault Troubleshooting, Overseas Procurement Cost Analysis

Note: All formulas are divided into mass production formulas (factory large-scale production) and lab trial sample formulas (laboratory / sample preparation), marked with raw material grade, addition limit, preparation process and compliance requirements. Only food-grade litsea cubeba oil (GB1886.35, citral $\geq 66\%$) can be used for food products; daily chemical rectified grade for daily chemical / disinfection products; industrial crude oil for citral isolation.

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- ### I. Fragrance Chemical Sector Formulas

1.1 Natural Lemon Fruity Daily Chemical Top Note Fragrance (100kg Mass Production, Daily Chemical Grade Litsea Cubeba Oil 75% Citral)

表格

Raw Material	Mass Part	Function
Litsea Cubeba Oil	12.0	Main fragrance, provides natural fresh lemon top note
Limonene	35.0	Fragrance expansion, softens fruity aroma
Linalool	8.0	Floral modification, reduces irritation
Orange Peel Oil	15.0	Sweet orange fruity compounding
Linalyl Acetate	10.0	Sweet base note
Dihydromyrcenol	7.0	Improves fragrance retention
95% Ethanol	13.0	Solvent & solubilizer

Process: Stir slowly at room temperature for 30min, mature in dark place for 72h before use; applied in laundry detergent, soap, air freshener fragrance, final addition ratio 1%~5%.

1.2 Edible Lemon Beverage Flavor (Food Grade, FEMA 3846 Compliant)

100 parts flavor formula:

Litsea Cubeba Oil 4.5, Lemon Oil 18, Sweet Orange Oil 12, Ethyl Acetate 3, Propylene Glycol 62.5

Final beverage limit: $\leq 56\text{mg/kg}$ (GB2760 national standard), feed below 80°C at low temperature.

1.3 Industrial Isolation Process Formula for High-Purity Citral (Industrial Crude Litsea Cubeba Oil, 70% Citral)

Raw Material: 1000kg Litsea Cubeba Crude Oil

Process Parameters: High-vacuum molecular distillation, vacuum 0.18kPa, reactor temperature $85\sim 95^{\circ}\text{C}$, reflux ratio 3:1

Output: 97.5%~98% high-purity natural citral; light terpene by-products for low-cost daily chemical fragrance.

1.4 Basic Feeding Formula for Ionone Synthesis (Citral Downstream Product)

100 parts high-purity citral + 280 parts butanone + dilute alkali catalyst, low-temperature condensation to form pseudoionone, then cyclization to produce ionone (core perfume fragrance).

II. Full Set of Food Industry Formulas (Food-Grade Litsea Cubeba Oil Only)

2.1 Commercial Compound Litsea Cubeba Flavor Oil (50kg Mass Production for Catering)

48kg Rapeseed Oil, 0.8kg Chili Oleoresin, 0.3kg Garlic Essential Oil, 0.2kg Ginger Essential Oil, 0.7kg Litsea Cubeba Oil, 1.0kg Zanthoxylum Oil, 1.0kg Sesame Seeds

Process: Cool oil temperature below 70°C before adding essential oils and stirring, fill in dark bottles; final addition 0.01%~0.05% in sour soup, grilled fish and dipping sauces.

2.2 Natural Antiseptic & Flavor Formula for Beef Sauce (Substitute Chemical Preservatives)

Total sauce weight 1000g: 650g soybean broad bean paste, 220g rapeseed oil, 80g minced beef, 12g white granulated sugar, 15g edible salt, 1.0g litsea cubeba oil (1μL/g), 2g spice powder

Process: Cool to 80°C after boiling, add litsea cubeba oil, stir evenly and seal; room temperature shelf life tripled, inhibits *Aspergillus flavus* and *Aspergillus niger*.

2.3 Meat Curing Preservation Liquid (Sausages, Cured Meat)

1000 parts pure water, 60 parts edible salt, 15 parts white granulated sugar, 50 parts liquor, 0.8 parts litsea cubeba oil, 0.2 parts rosemary extract

Pre-dissolve litsea cubeba oil with ethanol first then homogenize with water; soak for 15min during curing, bacteriostatic and antioxidant to delay meat rancidity.

2.4 High-Temperature Resistant Microcapsule Antiseptic Formula for Pastry Baking

92 parts β-cyclodextrin carrier, 8 parts food-grade litsea cubeba oil; high-speed homogenization embedding, add 0.05% in finished pastry, aroma loss <15% under 120°C baking.

2.5 Fruit & Vegetable Preservation Spray Liquid (Citrus, Strawberry)

1000ml deionized water, 3ml food-grade Tween 20, 0.3ml litsea cubeba oil, high-speed emulsification; spray after picking, cold storage rot rate reduced by 60%.

III. Daily Chemical Personal Care Mass Production Formulas (Daily Chemical Grade Litsea Cubeba Oil, 72%~78% Citral)

3.1 Refreshing Antibacterial Body Wash (O/W System, 100kg Mass Production)

表格

Raw Material	kg	Function Description
28% AES	32.0	Surfactant

Raw Material	kg	Function Description
Coconut	3.5	Thickening & foaming
Diethanolamide		
Glycerin	5.0	Moisturizing
Panthenol	0.6	Skin repair
Tween 20	1.2	Essential oil solubilizer
Litsea Cubeba Oil	0.15	Bacteriostasis & fragrance, final concentration 0.15%
Phenoxyethanol	0.8	Auxiliary antiseptic
Citric Acid	Adjust pH to 5.5~6.5	System stabilization
Deionized Water	Balance to 100	Solvent

Process: Heat aqueous phase to 70°C to dissolve surfactant, cool to 50°C and add pre-mixed litsea cubeba oil + Tween solution, homogenize for 15min.

3.2 Acne Inhibiting Skin Care Gel (Oily Acne Skin, 0.8% Essential Oil Concentration)

0.8g Carbomer 940, 5g glycerin, 6g propylene glycol, 0.2g sodium hyaluronate, neutralize with triethanolamine, 0.8g litsea cubeba oil, 1.2g Tween 80, pure water to 100g

Applicable for back acne, Malassezia folliculitis; reduce to 0.4% for facial use to lower irritation.

3.3 Antibacterial Mosquito Repellent Cold Process Soap (1000g Base Oil)

700g olive oil, 200g coconut oil, 100g palm oil, 36% NaOH lye, 0.5g VE, 5g litsea cubeba oil, 3g lavender oil

Process: Add essential oil below 40°C after soap trace, cure for 45 days; antibacterial, eliminates body odor and repels mosquitoes.

3.4 Reed Diffuser Liquid (Household Aroma Diffusion)

40 parts dipropylene glycol methyl ether, 30 parts anhydrous ethanol, 25 parts deionized water, 5 parts litsea cubeba oil; clear transparent liquid with long-lasting lemon fresh scent, inhibits indoor mold.

3.5 Soothing Body Massage Base Oil (Safe Dilution 1.2%)

98.8ml fractionated coconut oil, 1.2ml litsea cubeba oil; dispels dampness on waist and back, improves greasy body odor, undiluted oil prohibited for direct facial application.

IV. Disinfection & Bacteriostasis Aqueous Formulas (Disinfection Brand / Household Cleaning)

4.1 Household Air Antibacterial Spray (Transparent Microemulsion, No Stratification)

100ml anhydrous ethanol, 12ml Tween 20, 10ml litsea cubeba oil, 878ml pure water; mix oil + ethanol + emulsifier first, slowly add water under high-speed stirring; spray enclosed space to kill airborne fungi and eliminate mold odor.

4.2 Tinea Pedis Antibacterial Foot Spray (Target Candida Albicans)

600ml 75% medical alcohol, 30ml glycerin, 6ml litsea cubeba oil, 2ml peppermint oil, 362ml pure water; pre-dissolve essential oil with ethanol before mixing, spray on shoes, socks and soles daily.

4.3 Fabric Antibacterial Softening Liquid

900ml deionized water, 15g soft ester, 5g Tween 8, 1g litsea cubeba oil; add during rinsing stage, inhibits mites and sweat odor bacteria on clothes.

V. Agricultural & Grain Warehousing Mildew Prevention & Insect Repellent Formulas

5.1 Grain Sustained Release Mildew Prevention Particles (Rice, Corn, Peanuts)

950g diatomite carrier, 50g litsea cubeba oil, fully mixed and adsorbed; put 80~100kg sustained release particles per ton of grain, closed storage inhibits aflatoxin for over 3 months.

5.2 Compound Essential Oil for Fruit & Vegetable Cold Storage Fumigation (Atomization Use)

7 parts litsea cubeba oil, 1 part cinnamon oil, 1 part clove oil, 1 part geranium oil; 0.02ml mixed oil per cubic meter of cold storage, fumigate for 6~8h then ventilate to avoid fruit peel burn.

5.3 Vegetable Foliar Insect Repellent Diluent (Organic Planting)

1000ml pure water, 3ml organic penetration aid, 0.5ml litsea cubeba oil; spray on leaves in evening to repel aphids and whiteflies every 7 days, no pesticide residues.

VI. Aromatherapy External Formulas (For External Use Only, Oral Administration Prohibited)

6.1 Respiratory Relief Diffuser (Relieve Nasal Congestion, Wind-Cold Phlegm)

100ml water: 3 drops litsea cubeba oil + 2 drops eucalyptus oil + 2 drops lavender oil; ultrasonic diffusion for 30min each time.

6.2 Abdominal Warm Compress Massage Oil (Stomach Cold & Bloating)

10ml jojoba oil, 2 drops litsea cubeba oil, 1 drop ginger oil; massage abdomen clockwise to regulate qi and dispel cold.

6.3 Foot Bath Relief Formula (3L Warm Water)

3000ml warm water, 1ml emulsified Tween, 2 drops litsea cubeba oil; mix and soak feet for 15min, dispel dampness, relieve itching and eliminate foot odor.

VII. General Emulsification Base Formula (Solve Floating Oil Stratification in All Aqueous Systems)

General Microemulsion Pre-Dissolving Mother Liquid (Universal for Any Water Agent)

1 part litsea cubeba oil + 8~10 parts 95% ethanol + 0.8~1.2 parts Tween 20

Operation Sequence: Stir the three materials until fully miscible first, then slowly add pure water at low speed while homogenizing at 8000rpm for 15min; stable system without stratification, stable pH range 5.0~7.5.

VIII. General Safety & Process Specifications for All Formulas

1. Mandatory Grade Classification

1. Food Processing: Only food-grade litsea cubeba oil with GB1886.35 and FEMA GRAS qualification; industrial crude oil strictly forbidden for oral use.
2. Skin Care / Aromatherapy: Prefer 74%~78% rectified daily chemical grade with peroxide value $< 10\text{meq/kg}$ to reduce irritation and sensitization.
3. Chemical Isolation of Citral: Industrial crude distillation oil (66%~70% citral) with lowest cost.

2. Temperature Control Red Line

1. Feeding temperature of litsea cubeba oil $\leq 80^{\circ}\text{C}$; above 120°C citral volatilizes and oxidizes rapidly, leading to sharp loss of bacteriostatic activity and aroma.
2. Vacuum high-temperature control for rectification purification; add at low temperature for conventional formulas.

3. Sensitization Control (Mandatory for EU Export)

Citral is a sensitizing ingredient under CLP regulation; label warning required if final product concentration $> 0.001\%$. Essential oil concentration $\leq 0.5\%$ for facial products, halved for sensitive skin.

4. Storage Stabilization Optimization

Add 0.01%~0.05% Vitamin E or rosemary extract to formula system to delay oxidation discoloration and rancidity of litsea cubeba oil.

5. Incompatible Materials

Do not mix directly with sodium hypochlorite, hydrogen peroxide, concentrated nitric acid, potassium permanganate and other strong oxidants, which may cause heating, deterioration or even fire.

Would you like me to split this manual into a full English foreign trade export formula version, or separately export a one-page quick reference card for food industry / simplified daily chemical mass production formula table?