

Citrus Essential Oil Dilution and Sun-Safety Chart

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1. Dilution chart (approximate, about 20 drops per ml)

Dilution	Drops in 5 ml	Drops in 10 ml	Drops in 30 ml	Typical use
0.5%	0-1	1	3	Face, sensitive skin
1%	1	2	6	Daily body oil or lotion
2%	2	4	12	General massage blend
4%	4	8	24	Max for expressed grapefruit on sun-exposed skin
5%	5	10	30	General adult upper limit for skin (UMN)

Patch test first: try double your planned strength on the inner forearm for 48 hours. Stop if red, itchy, swollen or blistered.

2. Citrus oils and the sun (phototoxicity)

Oil and method	Phototoxic on skin?	What to do
Bergamot, expressed	Yes, strongly	Use "bergamot FCF" for skin, or keep skin out of the sun
Lime and lemon, expressed	Yes	Low dilution or no sun for 12 hours
Grapefruit, expressed	Yes, mildly	4% or less on sun-exposed skin, or no sun for 12 hours
Sweet orange, expressed	Generally considered no	Store cold; oxidizes quickly
Any citrus, distilled	No	Safer choice for daytime skin products
Any citrus, diffused only	No	Phototoxicity needs oil on the skin

3. Storage and oxidation

☐ Tight cap, dark glass, cool place (a fridge works) ☐ Date written on the cap when opened
☐ Use citrus oils within about a year of opening ☐ Discard if sharp, stale, turpentine-like or cloudy
Oxidized limonene is much more likely to cause skin allergy than fresh oil.

4. People and pets

Never swallow essential oils. Keep bottles out of children's reach, with drop-by-drop caps.
Pregnant or breastfeeding? Ask your doctor or midwife before skin use. Children: lower dilutions or avoid skin use.
Grapefruit is toxic to dogs, cats and horses (ASPCA). No oil on pets. No diffusers in homes with birds.
Diffuse in short sessions (about 15 minutes per hour) in a ventilated room, with a door open so pets can leave.

5. Emergency numbers

Child swallowed oil: US Poison Control 1-800-222-1222, or emergency services if drowsy, coughing or struggling to breathe.
Pet exposed: your vet or ASPCA Animal Poison Control (888) 426-4435.

This chart covers fragrance and skin-care use only. It makes no health claims and gives no doses for any illness.