Vinegar

Chemical Name: Acetic Acid Solution

Common Concentration: 4-10% Acetic Acid (most commonly 5% for household use)

Appearance: Clear, colorless liquid

Odor: Strong, pungent smell characteristic of vinegar

pH: 2-3 (acidic)

Solubility: Fully soluble in water

Cleaning Uses

- It is effective for cleaning windows, mirrors, countertops, and floors.
- It helps remove limescale and mineral deposits.
- It acts as a natural deodorizer (masks odors).

Warnings

- Eye Contact: May cause irritation. Flush with water if vinegar gets into the eyes.
- Skin Contact: Prolonged exposure may cause irritation or dryness. Wash with soap and water.
- Inhalation: Vinegar vapors may cause mild irritation to the respiratory tract. Ensure proper ventilation.
- Ingestion: Safe in typical culinary amounts. Ingesting large amounts may cause gastrointestinal discomfort.

Environmental Impact

- Biodegradability: Vinegar is readily biodegradable and environmentally friendly at household concentrations.
- Eco-toxicity: Nontoxic to aquatic and terrestrial life in standard amounts.

Storage and Handling

- Keep in a cool, dry place. Ensure the container is tightly sealed when not in use.
- Avoid direct contact with eyes or skin in large quantities. Use gloves for extended exposure to undiluted vinegar.
- Vinegar is a non-hazardous material in household concentrations and does not require special disposal methods.

Sodium Bicarbonate

Chemical Formula: $NaHCO_3$

Common Names: Baking soda, bicarbonate of soda, sodium hydrogen carbonate

Appearance: White crystalline powder

Solubility in Water: Moderately soluble

pH in solution: Basic (around 8.3)

Cleaning Uses

- It effectively cleans surfaces, removes odors, and acts as a gentle abrasive cleaner.

Warnings

- Ingestion: Generally safe in small quantities, but large amounts may lead to electrolyte imbalance, nausea, and gastrointestinal discomfort.
- Inhalation: Inhalation of large amounts of powder may irritate the respiratory system.
- Skin Contact: Generally safe, but prolonged contact may cause mild irritation.
- Eye Contact: May cause irritation and redness.

Environmental Impact

- Sodium bicarbonate is generally considered environmentally safe. It is not known to cause significant environmental harm, as it dissolves in water and breaks down naturally.

Storage and Handling

- Store sodium bicarbonate in a tightly closed container in a cool, dry, well-ventilated area.
- Avoid breathing dust and prolonged contact with your skin, eyes, and clothing.

Isopropyl Alcohol

Chemical Name: Isopropanol, 2-Propanol

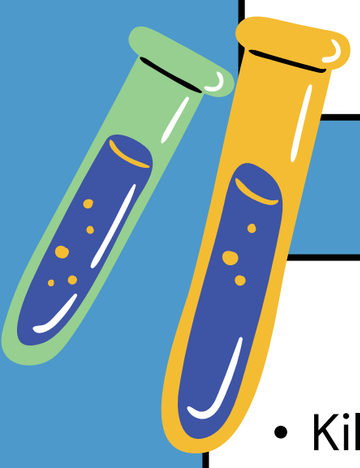
Common Concentration: 60 - 70%

Appearance: Clear, colorless liquid

Odor: Pungent alcoholic odor

Solubility: Fully soluble in water

Highly flammable.



Cleaning Uses

- Kills bacteria and viruses on surfaces like countertops, keyboards, and doorknobs.
- Ideal for cleaning phone screens, keyboards, and other electronics without leaving residue.
- Effective at dissolving adhesive residue from stickers and tape on glass, plastic, and metal.
- It can help lift ink and other stains from fabric and other surfaces.
- Air Freshener: Mixed with essential oils and water, it can serve as a homemade air freshener.

Warnings

- Highly Flammable: Rubbing alcohol is extremely flammable and can ignite easily.
- Ensure proper ventilation when using it in small or enclosed spaces.
- Harmful if ingested.
- Use gloves if handling large amounts or if your skin is sensitive.
- Rubbing alcohol can cause significant irritation or injury if it comes into contact with the eyes.
- It can irritate the skin.
- Vapors can cause drowsiness, dizziness, or other effects on the central nervous system if inhaled in large amounts.

Environmental Impact

- Do not pour rubbing alcohol down drains or dispose of in large quantities due to its potential environmental impact.

Storage and Handling

- Handling: Avoid breathing vapors. Use in well-ventilated areas and keep away from ignition sources.
- Storage: Store in a cool, well-ventilated area away from heat sources and direct sunlight. Keep the container tightly closed.

Lavender Essential Oil

Main constituents:

- Linalool: Calming and relaxing properties.
- Linalyl acetate: Contributes to soothing effects.
- Camphor: Low concentration, gives a slightly woody scent.
- Terpinen-4-ol: Antimicrobial and antifungal properties.

Derived from the flowering tops of the lavender plant (Lavandula angustifolia) through steam distillation.

Cleaning Uses

- Antimicrobial properties: Lavender oil contains compounds that prevent the growth of bacteria, mold, and fungi.

Warnings

- Skin sensitivity: Dilute before applying to avoid irritation.
- Allergic reactions: Test a small area of skin for sensitivity.
- Internal use: Not safe unless advised by a healthcare provider.

Environmental Impact

- Sustainable cultivation, though overharvesting may deplete wild populations.
- Biodegradable and nontoxic, but large-scale extraction can strain local ecosystems.

Storage and Handling

- Store in a dark, airtight glass container to protect against light and heat.
- Keep in a cool, dry place, away from children and pets.

Rosemary Essential Oil

Main constituents:

- **1,8-Cineole (Eucalyptol): Boosts mental clarity and has respiratory benefits.**
- **Camphor: Stimulates circulation and provides a warming effect.**
- **α-Pinene: Anti-inflammatory and uplifting aroma.**
- **Verbenone: Supports skin regeneration (in some varieties).**

Extracted via steam distillation from the leaves of the rosemary plant (Rosmarinus officinalis).

Cleaning Uses

- Rosemary oil can help kill bacteria, viruses, and fungi that cause infection.
- Rosemary oil can help remove grease, grime, and stains.

Warnings

- Skin irritation: Must be diluted to prevent adverse reactions.
- Nontoxic: Rosemary oil is nontoxic, biodegradable, and safe for humans and pets.

Environmental Impact

- Often sustainably cultivated but requires substantial water resources.
- Biodegradable and nontoxic, but ensure waste management during distillation.

Storage and Handling

- Store in a tightly sealed glass bottle in a cool, dark place.
- Keep away from heat, sunlight, and moisture.

Lemon Essential Oil

- **Main Constituents: Citral (up to 75%), geraniol, limonene**

- **Extraction Method: Steam distillation from lemongrass leaves and stalks**

Cleaning Uses

- Antimicrobial and antifungal properties make it effective in DIY cleaning solutions.

- Insect repellent: Used as a natural insect deterrent in sprays or diffusers.

Warnings

- Skin sensitivity: Known to cause irritation if used undiluted.

- Photosensitivity: Mildly photosensitive; avoid sun exposure after use on skin.

Environmental Impact

- Biodegradability: Biodegradable in small amounts, but can disrupt aquatic ecosystems if disposed of in large concentrations.

- Proper disposal: Avoid rinsing large quantities into waterways.

Storage and Handling

- Store in a dark, cool place to maintain potency, ideally in amber or cobalt glass.

- Always dilute before applying to the skin, as it is highly potent and can cause irritation.

Orange Essential Oil

- Main Constituents: Limonene (up to 90%), myrcene, alpha-pinene
- Extraction Method: Cold pressing of the orange peel

Cleaning Uses

- Powerful natural degreaser and antimicrobial; often used in household cleaning.

Warnings

- Photosensitivity: Increases skin's sensitivity to sunlight; avoid sun exposure for 12–24 hours after use on skin.
- Skin sensitivity: May cause irritation if not diluted; dilute with a carrier oil before topical application.
- Ingestion warning: Not safe for ingestion in concentrated form without guidance from a medical professional.

Environmental Impact

- Biodegradability: Orange oil is biodegradable, but high concentrations can be harmful to aquatic organisms.
- Proper disposal: Avoid disposal in water systems; dilute with water for small amounts before rinsing down the drain.

Storage and Handling

- Store in a cool, dark place to protect from light, which can degrade the oil.
- Keep tightly sealed to avoid oxidation, which can reduce effectiveness.

Citric Acid

- Chemical Formula: $C_6H_8O_7$
- Molecular Structure: Citric acid is a weak organic acid.
- Naturally found in citrus fruits like lemons, limes, and oranges. It is also produced industrially by fermenting sugars using strains of Aspergillus niger.
- pH: It is acidic, with a pH of ~3 in aqueous solutions.

Cleaning Uses

- It is found in cleaning agents as a natural descaler and rust remover.
- Added to soaps and shampoos for removing minerals in hard water.

Warnings

- Skin and eye irritation: Concentrated solutions can cause irritation to skin, eyes, and mucous membranes.
- Ingestion risks: Safe in moderate amounts, but excessive consumption can cause gastrointestinal discomfort or enamel erosion.
- Inhalation: can irritate the respiratory tract if inhaled.

Environmental Impact

- Citric acid is biodegradable and considered environmentally friendly. It does not accumulate in the environment and breaks down naturally into harmless substances.
- Aquatic impact: At high concentrations, it can temporarily affect aquatic life by altering pH levels.

Storage and Handling

- Store in a cool, dry place away from moisture and direct sunlight.
- Avoid direct contact with concentrated forms; use appropriate personal protective equipment (PPE).
- Ensure good ventilation in areas where citric acid is handled.