Aerosol extraction for supplements and cannabis oils

The Better way of Applying Science in Tech

COMERG PURE 5

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The Extraction Basys

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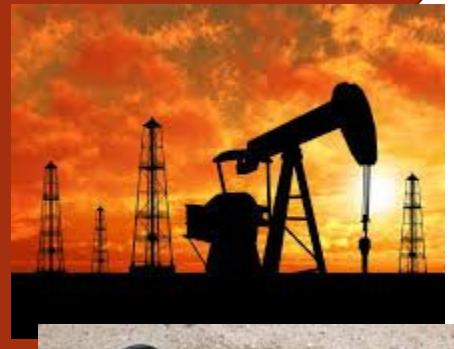
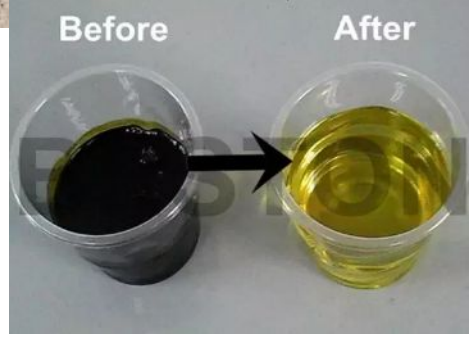
Plant Extraction

HOW THE INDUSTRY DOES IT?





The Industry Now

Extracting with harmful solvents

Producing Crude - Konrette

Eliminating non-target materials under extreme temperatures

Distilling for color

Reintroducing lost substances

Formulating for label

The Natural way with PURE5

Using gentle, non-destructive, chemical free extraction process (PBX) to extract concentrated terpenes and cannabinoids in an unaltered plant profile.

Produce consistent strain specific extracts with preserved natural potency and plant vitality at room-temperature (75F) and Low Pressure (LPE).

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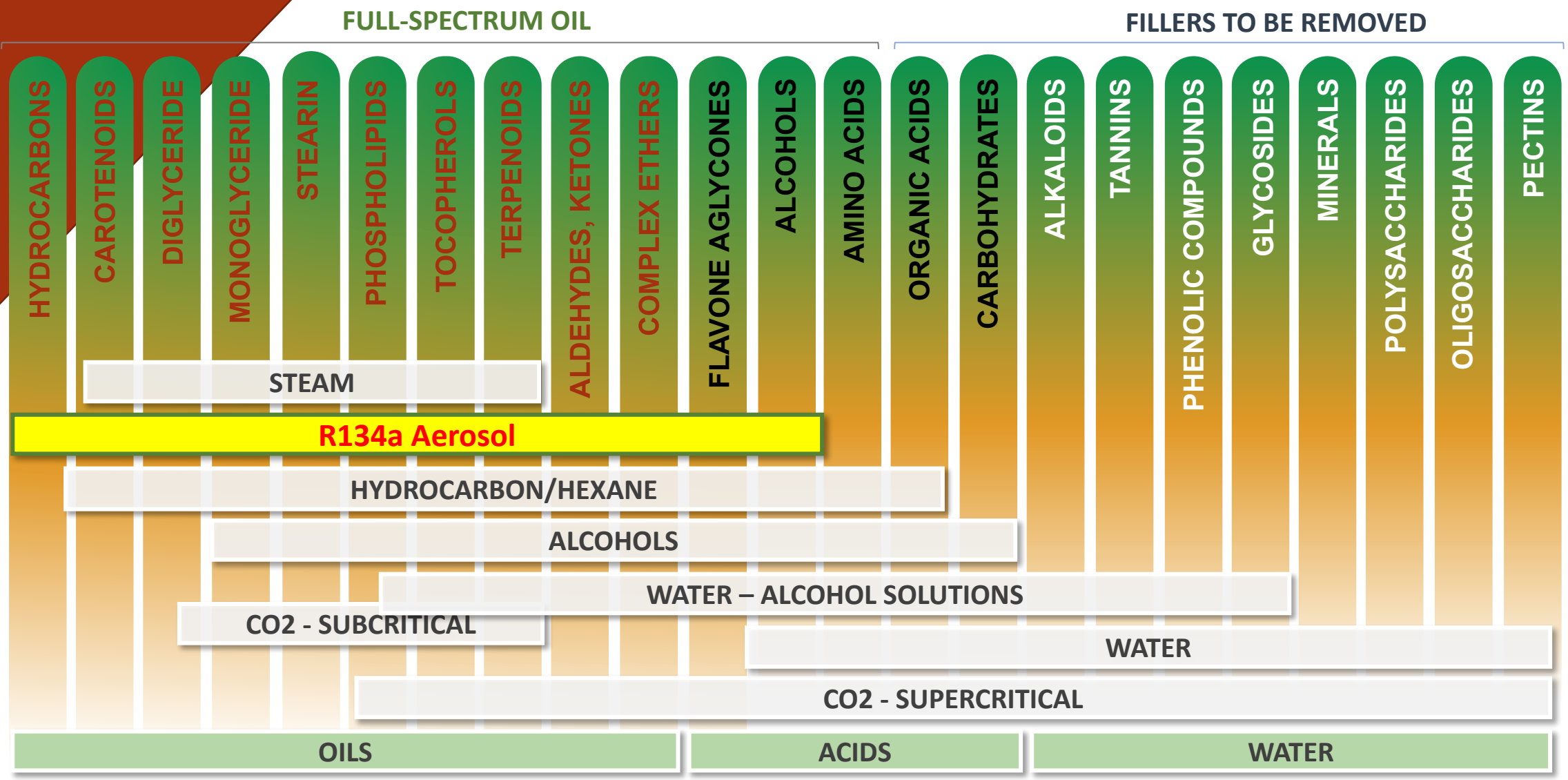
Plant Extraction



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Extraction machines

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10L Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x10 L vessel holds up to 2 - 4 pound of dry material
- **Pressure:** Maximum operating pressure 16 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange, both ends
- **Sealing:** Flanges with PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Jacket volume:** 10 Liters (5.13 gallon)
- **Safety:** spring loaded safety relief valve

Solvent receiver

- **Orientation:** horizontal
- **Maximum solvent content:** 32 kg

Separator

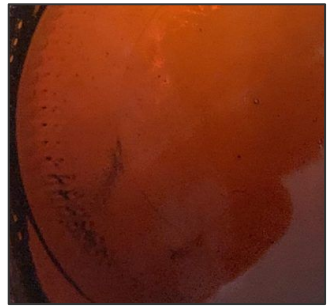
- **Separator:** Jacketed separator
- **Volume:** 10 Liter
- **Pressure:** Maximum operating pressure 10 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Sealing:** Flanges with PTFE flat seals
- **Safety:** spring loaded safety relief valve
- **Flow path:** continuous/batch gravitational path

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R134a refrigerant

Chiller/Receiver

- **Refrigeration:** heat pumping
- **Temperature range:** -10°C to 50°C (14°F to 158°F)
- **Maximum solvent content:** 2 kg



20L LPE Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x10 L vessel holds up to 2 - 4 pound of dry material
- **Pressure:** Maximum operating pressure 16 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange, both ends
- **Sealing:** Flanges with PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Jacket volume:** 10 Liters (5.13 gallon)
- **Safety:** spring loaded safety relief valve

Solvent receiver

- **Orientation:** horizontal
- **Maximum solvent content:** 32 kg

Separator

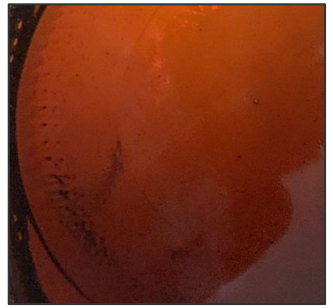
- **Separator:** Jacketed separator
- **Volume:** 10 Liter
- **Pressure:** Maximum operating pressure 10 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Sealing:** Flanges with PTFE flat seals
- **Safety:** spring loaded safety relief valve
- **Flow path:** continuous/batch gravitational path

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R134a refrigerant

Chiller/Receiver

- **Refrigeration:** heat pumping
- **Temperature range:** -10°C to 50°C (14°F to 158°F)
- **Maximum solvent content:** 2 kg



20L MAX Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x10 L vessel holds up to 2 - 4 pound of dry material
- **Pressure:** Maximum operating pressure 16 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange, both ends
- **Sealing:** Flanges with PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Jacket volume:** 10 Liters (5.13 gallon)
- **Safety:** spring loaded safety relief valve

Solvent receiver

- **Orientation:** horizontal
- **Maximum solvent content:** 32 kg

Separator

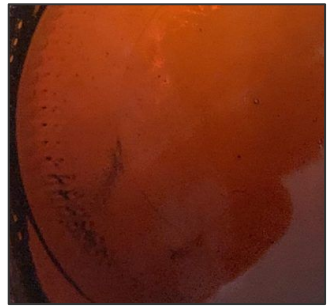
- **Separator:** Jacketed separator
- **Volume:** 10 Liter
- **Pressure:** Maximum operating pressure 10 bar
- **Temperature:** max 60°C (140°F)
- **Materials:** 304 stainless steel
- **Sealing:** Flanges with PTFE flat seals
- **Safety:** spring loaded safety relief valve
- **Flow path:** continuous/batch gravitational path

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R134a refrigerant

Chiller/Receiver

- **Refrigeration:** heat pumping
- **Temperature range:** -10°C to 50°C (14°F to 158°F)
- **Maximum solvent content:** 2 kg



50L Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x25L vessel holds up to 6-8 pounds dry material
- **Pressure:** Maximum system operating pressure 12 bar
- **Temperature:** max 45C (113F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange
- **Sealing:** Flanges with PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Water Jacket volume:** 15 Liters (4 gallons)
- **Safety:** spring loaded safety relief valve
- **Raw material feed:** top loading
- **Residue removal:** flange closure, manual

Separator/Collection Vessel

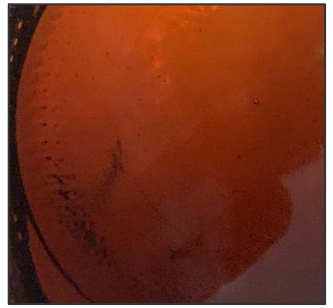
- **Separator:** Jacketed separator/collection vessel
- **Volume:** 40 Liters (10.6 gallons)
- **Pressure:** Maximum system operating pressure 12 bar
- **Temperature:** max 60C (140F)
- **Materials:** 304 stainless steel
- **Safety:** spring loaded safety relief valve
- **Flow path:** continuous diameter with no constrictions

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R404a refrigerant

Chiller/Receiver

- **Refrigeration:** heat pumping
- **Temperature range:** -10C to 50C (14F to 158F)
- **Maximum solvent content:** 65 kg



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sales@comerg.com

100L Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

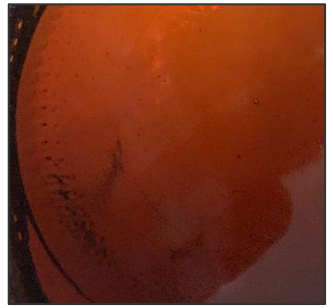
- **Volume:** 2x50L vessel holds up to 10-15 pounds dry material
- **Pressure:** Maximum system operating pressure 12 bar
- **Temperature:** max 45C (113F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange
- **Sealing:** Flanges with PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Water Jacket volume:** 25 Liters (6.6 gallons)
- **Safety:** spring loaded safety relief valve
- **Raw material feed:** top loading
- **Residue removal:** flange closure, manual

Separator/Collection Vessel

- **Separator:** Jacketed separator/collection vessel
- **Volume:** 75 Liters (20 gallons)
- **Pressure:** Maximum system operating pressure 12 bar
- **Temperature:** max 60C (140F)
- **Materials:** 304 stainless steel
- **Sealing:** Flanges with PTFE flat seals
- **Safety:** spring loaded safety relief valve
- **Flow path:** continuous diameter with no constrictions

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R404a refrigerant



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200L Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x100L vessel holds up to 20-40 pounds dry material
- **Pressure:** Maximum system operating pressure 14 bar
- **Temperature:** max 85C (185F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange, both ends
- **Sealing:** PTFE flat seals
- **Temperature measurement:** IPt100 sensors
- **Water Jacket volume:** 100 Liters (26.5 gallons)
- **Safety:** spring loaded safety relief valve
- **Raw material feed:** vacuum mode
- **Residue removal:** vacuum mode, clamp closure
- **Raw material agitation:** low speed stirrer

Separator/Collection Vessel

- **Separator:** Jacketed separator/collection vessel
- **Volume:** 15 Liter
- **Pressure:** Maximum system operating pressure 14 bar
- **Temperature:** max 71C (160F)
- **Materials:** 304 stainless steel
- **Closures:** Rotary spray ball
- **Safety:** spring loaded safety relief valve
- **Flow path:** from extractor to separator is continuous diameter with no constrictions.

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R404a refrigerant

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500L R134a Aerosol Extraction

R134a Aerosol extraction has:

1. **Up to 60 min processing time**
2. **Yield = Potency**
3. **Does not need winterization**
4. **Preserves all terpenes**
5. **Runs at room temperature**

Extraction Vessel

- **Volume:** 2x100L vessel holds up to 20-40 pounds dry material
- **Pressure:** Maximum system operating pressure 14 bar
- **Temperature:** max 85C (185F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** ASME flange, both ends
- **Sealing:** PTFE flat seals
- **Temperature measurement:** IPt100 sensors
- **Water Jacket volume:** 100 Liters (26.5 gallons)
- **Safety:** spring loaded safety relief valve
- **Raw material feed:** vacuum mode
- **Residue removal:** vacuum mode, clamp closure
- **Raw material agitation:** low speed stirrer

Separator/Collection Vessel

- **Separator:** Jacketed separator/collection vessel
- **Volume:** 15 Liter
- **Pressure:** Maximum system operating pressure 14 bar
- **Temperature:** max 71C (160F)
- **Materials:** 304 stainless steel
- **Closures:** Rotary spray ball
- **Safety:** spring loaded safety relief valve
- **Flow path:** from extractor to separator is continuous diameter with no constrictions.

Heat Exchanger

- **Construction:** refrigeration unit
- **Materials:** all 304 stainless steel
- **Cooling/Heating:** R404a refrigerant

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Lab Systems

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Distillation Equipment

What makes it unique:

1. **Precise temperature control**
2. **Terpene and solvent traps**
3. **Single Turn Distillation**
4. **Vacuum and diffusion pumps**

Technical Data

- **Effective Evaporation area:** 0.25m²
- **Ultimate vacuum degree:** ≦1.0Pa
- **Barrel inside diameter:** 150 mm
- **Motor Power:** 120W
- **Max RPM:** 300
- **Processing Flow:** 2.0-5.0L/H
- **Feeding system:** 5L manual
- **Discharge system:** ball valve
- **Power supply:** 220V/60Hz 1 phase

Evaporator

- **Pressure:** Not pressurized
- **Temperature:** max 225°C (437°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Closures:** flange
- **Sealing:** PTFE flat seals
- **Temperature measurement:** Pt100 sensors
- **Water Jacket volume:** 100 Liters (26.5 gallons)
- **Raw material feed:** manual mode
- **Raw material spread:** low speed wiper

Condenser

- **Separator:** 2 stage condenser with cold trap
- **Pressure:** No pressure
- **Temperature:** -20°C (-4°F)
- **Materials:** 304 stainless steel

Chiller

- **Construction:** Recirculating cooler
- **Range:** -20°C
- **Rate:** 22 L/min
- **Volume:** 6L

Heat/Cold Exchanger

- **Construction:** Cooling and heating circulator
- **Range:** -20°C to 150°C
- **Rate:** 22 L/min
- **Volume:** 17L

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Vacuum Ovens

What makes it unique:

1. **High Temperature**
2. **Drying and decarboxylation**
3. **Included Vacuum Pump**
4. **Automated temperature control**

Vacuum Oven

- **Volume:** 18 Cu. Ft (500L)
- **Interior:** 630 x 810 x 845 mm
- **Shelving** 4 each
- **Vacuum:** 0.089 Mpa
- **Material:** SS 1Cr18Ni9Ti
- **Weight Capacity:** 65 lbs

Temperature

- **Range:** 10°C to 250°C
- **Temp Stability:** 0.1°C +/- 1°C
- **Working Temperature:** -5 °C to 40 °C

Power

- **Voltage:** 208V – 240V, 26A
- **Power:** 4000W

Vacuum Oven

- **Volume:** 2 Cu. Ft (50L)
- **Interior:** 410 x 400 x 345 mm
- **Shelving** 2 each
- **Vacuum:** 0.089 Mpa
- **Material:** SS 1Cr18Ni9Ti
- **Weight Capacity:** 5 lbs

Temperature

- **Range:** 10°C to 250°C
- **Temp Stability:** 0.1°C +/- 1°C
- **Working Temperature:** -5 °C to 40 °C

Power

- **Voltage:** 208V – 240V, 7A
- **Power:** 1400W

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THC Remediation Equipment

What makes it unique:

1. **Solventless process**
2. **Fully automated**
3. **Modest temperature**
4. **Low cost process**

Processing Vessel

- **Volume:** 170L vessel holds up to 150L of extract
- **Pressure:** Not pressurized
- **Temperature:** max 125°C (257°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Temperature measurement:** Pt100 sensors
- **Water Jacket volume:** 95 Liters (25 gallons)

Condenser Vessel

- **Volume:** 16 Liter
- **Pressure:** Not pressurized
- **Temperature:** max 35C (95F)
- **Materials:** 304 stainless steel
- **Cleaning:** Manual
- **Flow path:** Manual

Air Flow Control

- **Air Compressor:** Compressed air
- **Temperature range:** 20°C to 50°C (68°F to 158°F)

Physical Dimensions

- **Height:** 2 800 mm
- **Length:** 1 500 mm
- **Width:** 1 050 mm
- **Total weight:** apr. 400 kg
- **Floor mounting area:** min. 5 m^2
- **Ceiling height:** 3 m

Processing Vessel

- **Volume:** 10L vessel holds up to 5L of extract
- **Pressure:** Not pressurized
- **Temperature:** max 125°C (257°F)
- **Materials:** 304 stainless steel
- **Vessel:** interior is polished to food grade level
- **Temperature measurement:** Pt100 sensors
- **Water Jacket volume:** 6.6 Liters (1.75 gallons)
- **Heater:** 1 400 W

Air Flow Control

- **Air Compressor:** Compressed air
- **Temperature range:** 20°C to 50°C (68°F to 158°F)

Physical Dimensions

- **Height:** 1 370 mm
- **Length:** 680 mm
- **Width:** 470 mm
- **Total weight:** apr. 100 kg
- **Floor mounting area:** min. 2 m^2
- **Ceiling height:** 2.50 m

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The Benefits

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Benefits

- **Excellent selectivity** – A highly polar solvent extracts specific flavor and aroma substances from the plant.
- **Does not contact with the aqueous phase** - There is no hydrolysis process and will not affect the acidity of the final product.
- **No exposure to air during treatment** - No oxidation during process preserving maximum flavor and rich aroma of the end product
- **No temperature influence on raw material and product** - Maintaining maximum naturalness and full nutritional significance of the end product
- **No residues of solvent** - Cleaner process suitable for organic extracts where the extracts can be used directly in food or drinks
- **The extraction is carried out at low pressure** – Significantly lower investment for equipment and maintenance
- **Safe for human health** - Nontoxic solvent qualified as GRAS (Generally Recognized As Save)

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Metrics

QUALITY

- Higher yields with shorter run times to cleaner product
- Full solvent recovery with no residue in final product
- Product ready extract with no winterization required

HIGHER YIELDS

LOWER COST

- Low Maintenance due safe and rigid equipment construction
- Down to 20% CapEx from energy and cost
- Up to 80% energy and cost savings

FASTER RUNS

SAFETY

- Human Safe process with GRAS FDA approved solvent
- Not Flammable, Low Pressure and highly safe technology
- Room Temperature low energy liquefied gas extraction

CHEAPER PROCESS

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Cannabis

Cannabis Oils with LPE

All extracts can replace traditional spice in quantities from 1:25 to 1:500 in different meat, dairy and vegetable products. They sharply reduce bacteriological contamination, prolong life, improve the flavor and appearance of the foods. They are easily dosed and occupy small volumes in storage.

- Rich on odoriferous and lipophilic substances, soluble in alcohol and oils
- Preserved natural pH - no contact with water and pH affecting factors during process
- Preserved natural odor - no exposure to air and light during process
- Preserved natural microflora - no temperature influence during process
- Preserved natural strength - can be used directly in food or drinks

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Functional Mushrooms

Natural Mushroom Extracts with LPE

- **LION'S MANE** A huge, white mushroom known as "lion's mane" develops a shaggy appearance that resembles a lion's mane. According to studies, lion's mane helps raise Nerve Growth Factor (NGF) levels, which shields us from memory-damaging degenerative brain conditions.

- **CHAGA** Chaga has been utilized for millennia as an immune system booster all throughout the world. The immune system's initial line of defense is made up of white blood cells.

- **REISHI** Reishi has become one of the most well-liked mushrooms to encourage a state of relaxation in today's environment of stress and worry. Triterpene, an active ingredient in Reishi, has been found in research to help lower stress, promote restful sleep, elevate mood, and sharpen mental focus.

- **CORDYCEPS** A Chinese fungus called cordyceps is utilized as a restorative tonic. Additionally, it is renowned for enhancing athletic performance.

- **SHIITAKE** Shiitake mushrooms, which are mostly farmed in Japan, are prized for their exceptional flavor and have been sought after for thousands of years by people hoping to lengthen their lifespan and reduce inflammation. Shiitake mushrooms are very high in B vitamins and contain antiviral and antibacterial characteristics, which is why they are so effective.

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sales@comerg.com

Flavors

Flavors with LPE

- Anise (*Pimpinella anisum* L.)
- Cardamom (*Elettaria cardamomum* L.)
- Caraway (*Carum carvi* L.)
- Cumin (*Cuminum cyminum* L.)
- Coriander (*Coriandrum sativum* L.)
- Dill seeds (*Anethum graveolens* L.)
- Ginger (*Zingiber officinale* Rosc.)
- Juniper berry (*Juniperus communis*.L.)
- Laurel leaf (*Laurus nobilis* L.)
- Nutmeg (*Myristica fragrans* Houtt.)
- Origanum (*Origanum heracleoticum* L.)
- Black pepper (*Piper nigrum* L.)
- Rosemary (*Rosmarinus officinalis* L.)
- Savory (*Satureja hortensis* L.)
- Pimento (*Pimenta dioca* L.)

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Time To Market

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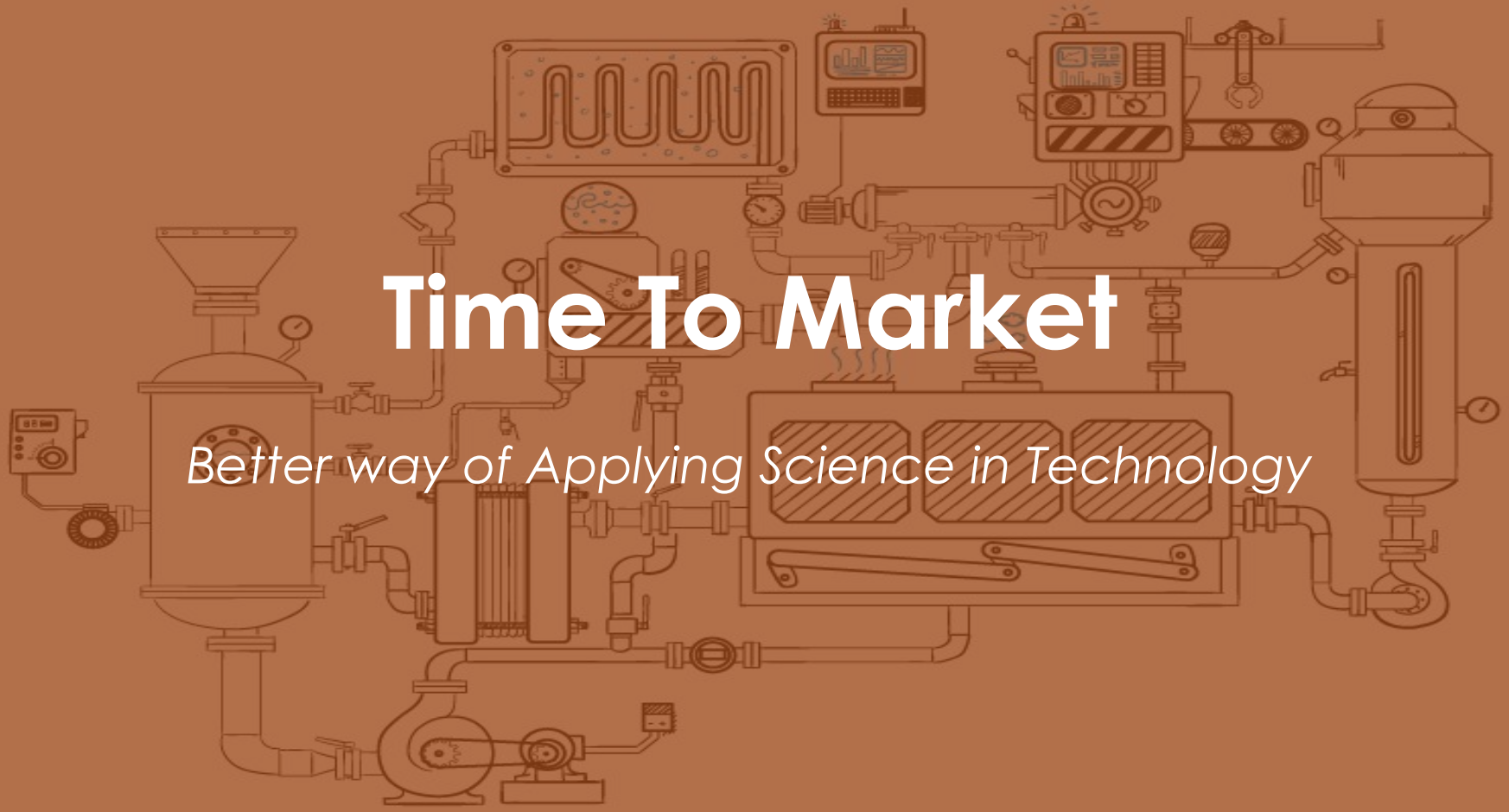

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Time to Market

Non-Decarbed Material

1st Pass

Live Resin

Products

Vape

Tinctures

1:1 Prods

Diamonds & Sauce

Decarb

Distillation

Terpenes

Products

Botanical Terp Substitute

D8/D9 Distillate

Tinctures

Edibles

Decarbed Material

Remediation

Broad Spec Oil

2nd Pass

Full Spec Oil

Products

Vape Topicals

Tinctures Gelcaps

Edibles Skin Care

Products

Vape Topicals

Tinctures Gelcaps

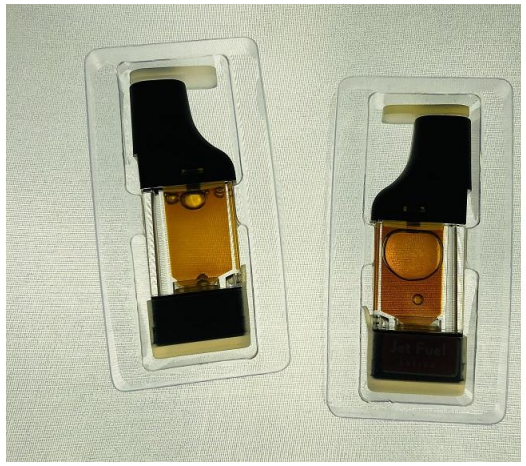
Edibles Skin Care

Processed Biomass

Time to Market

Same day Time To Market:

1. **Single run Extraction process**
2. **No damage to your oils**
3. **Use directly from the machine**



CPNP Registered in the EU

Contacts

COMERG PURE 5

Questions…

George Stantchev, PhD

+1-602-284-8038

george@comerg.com

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