

Spice Extraction: Getting the most out of Spices

Why Spices?

Herbs and spices are very powerful ingredients for cooking or even health. They also provide powerful health benefits like antioxidants, vitamins, and health compounds.

As consumer preference shifts towards products with natural ingredients and organic flavors, spice extraction will become a viable solution to meet the increasing demand for spices across the food and beverage, pharmaceutical, nutraceutical, and personal care industries.

The Extraction Advantage

Oleoresins are concentrated natural extracts with active compounds from plants, spices and herbs. These are 5-20 times stronger in flavor than their corresponding spices. During their extraction, fewer low flavor notes are destroyed as opposed to during steam distillation of essential oils.

Moreover, oleoresin oils contain some important flavor notes which are absent in volatile oils. For instance, while black pepper oil contains just the top black pepper notes, its oleoresin contains piperine and other low flavor notes, making it a more effective flavoring agent. Oleoresins are used at 0.1-0.5% in finished products.

Consequently, food and spices companies are inclining towards oleoresin production, thus heightening market growth prospects in the forthcoming decade's forecast period.

Requirements in Extraction

- ✦ Lower adulteration in extraction process.
- ✦ The extracted solvent should have higher bioactive and lower residues.
- ✦ The output should be chemical free.
- ✦ Multiple recipe selection.
- ✦ Clean, safe and Green Technology.
- ✦ Robust process and monitor controlling.
- ✦ Operational safety.
- ✦ Minimal human intervention.

Buffalo Extraction Systems Solution

Three levels of CO₂ SCFE equipment.



Level 1



Level 2



Level 3



01

**Accurate Pressure
Control**



02

**Consistent Flow
Control**



03

**Superior Sealing
Technology**



04

**Unique Extractor
Closure Design**



05

**Special Separator
Design**






06

**Proprietary
Changeover Valves**

Bringing the Future of Extraction to the World

Our team starts by blending principles with practicalities and continue by connecting proven automation process blocks into a holistic solution.

-  **Integration:** Combining scientific and engineering principles with a rich and diversified practical experience to provide innovative solutions to challenges.
-  **Modularity:** Automation based on proven process blocks.
-  **Connectivity:** Linking equipment and control systems via PCs and PLCs for seamless operation.

System Specifications

Parameters	Level 1	Level 2	Level 3
Single Extractor Volume (Litre)	5	25	100 / 200 / 300
No. of Extractors	2	2 or 3	2 or 3
Extractors Usage	Single	Single or Series	Single or Series
Pressure Bar (PSI)	350 – 650 (5000 – 9500)	350 – 650 (5000 – 9500)	350 – 650 (5000 – 9500)
Temperature — °C (°F)	70 – 110 (158 – 230)	70 – 110 (158 – 230)	70 – 110 (158 – 230)
CO₂ Recirculation	Yes	Yes	Yes
Extractor Changeover Valves	Manual or Automatic	Automatic	Automatic
CO₂ Pump Flowrate (LPH)	40 -80	150 -350	600 -3000
Co-Solvent Pump	Yes	Yes	Yes
CO₂ Feeding & Recovery System	Included	Included	Included
Available Certifications	CE / U / U2 cGMP / ASME BPE / UL / SIL-3	CE / U / U2 cGMP / ASME BPE / UL / SIL-3	CE / U / U2 cGMP / ASME BPE / UL / SIL-3
Area Required* (m/ft)	4.88 x 1.37 x 2.44 / 16 x 4.5 x 8	8 x 2.8 x 5.6 / 26 x 27 x 18.5	13.7 x 7.9 x 8 / 45 x 26 x 27
* All systems can be customized based on the factory layout.			

Recent Projects



Pilot Scale Extraction System

- ◆ Research for Herbal products Extraction
- ◆ Capacity: 20L
- ◆ Pressure Rating: 650 bar
- ◆ Industry: Herbal Pharma Products
- ◆ Location: India



Production Scale Extraction System

- ◆ Essential Oil Extraction Plant
- ◆ Capacity: 300L
- ◆ Pressure Rating: 350 bar
- ◆ Industry: Essential Oil
- ◆ Location: Indonesia

Clients —



buffaloextracts.com

Write to us at
info@buffaloextracts.com

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