CANNABIS HEATING SOLUTIONS

YES WE HEAT THAT!
APPLICATION NOTE

CANNABIS DISTILLATION

An effective way to distill THC and CBD cannabinoids from cannabis plants

Application

Extracting and purifying cannabinoids from cannabis involves a multistep process. The most popular cannabinoids being isolated in the industry right now are tetrahydrocannabinol (THC) and cannabidiol (CBD). These are two naturally occurring major cannabinoids, or biologically active chemical compounds found in cannabis. Both are used in various ways to treat medical conditions such as anxiety, sleep problems, movement disorders and chronic pain, and may also be used recreationally depending on state laws.

The process of purifying and isolating cannabinoids starts with extraction, where milled plant material is processed in a way that removes the cannabinoids. There are many methods to achieve this but this step usually involves a solvent such as ethanol or supercritical carbon dioxide. After extraction the cannabis crude oil needs to be further refined to purify and isolate the desired cannabinoids. A common practice to achieve purification is through distillation.

One common distillation process is called “continuous” and is often referred to as “wiped film”. This distillation process contains several steps, and during a couple of these the extract is run through objects where heat is required to reduce the viscosity and evaporate unwanted impurities. The process components that must be heated vary from method to method, but consistently include glass or stainless-steel tubing, pumps, small vessels, and dispensing machines. Heaters must be extremely flexible in order to contour to a variety of surfaces, removable and reusable, easily controllable between 80 and 100°C (176-212°F), and moisture and chemical resistant. If the heaters do not feature these characteristics, inefficiencies and reduced production can occur, and lead to lost revenue and increased downtime.

Solution

One common option is to use BriskHeat flexible heating tapes for most of the distillation steps. They possess all the desired characteristics listed above. Additionally, they are manufactured in widths ranging from 0.5 in to 2.0 in (13 mm to 51 mm), and lengths from 2 ft to 200 ft (0.6 m to 61 m) so are versatile enough to use on both small vessels and tubes/pipes. To maximize thermal efficiency, custom cloth removable and reusable insulators are used. As an alternative to using heating tape and cloth insulators, BriskHeat can provide custom cloth heating jackets and mantles that are all-in-one heaters and insulators that can fit almost any size and configuration. The durable construction and oil-resistant PTFE cloth allows them to last for years. To control the temperature, a PID temperature controller like SDX or LYNX® is preferred.

BriskHeat offers a full range of heating and temperature solutions to fit a wide range of applications.

- Flexible Heating Tapes
- Heating Mantles
- Custom Cloth Heating Jackets and Mantles
- Beaker Heaters
- Mica Band and Nozzle Heaters
- Cartridge Heaters
- Silicone Rubber Heating Blankets
- PID Temperature Controllers
- Cloth Jacket Insulators

For “short path” benchtop processes, round-bottom flasks are often used to reduce viscosity and remove impurities.
XTREMEFLEX® BS0 SILICONE RUBBER HEATING TAPES

- Moisture and chemical resistant
- Exceptionally flexible
- Maximum exposure temperature 450°F (232°C)

<table>
<thead>
<tr>
<th>Tape Width (in mm)</th>
<th>Tape Length (ft)</th>
<th>Watts</th>
<th>Part No. 120 V</th>
<th>Part No. 240 V</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50 (13)</td>
<td>2 (0.6)</td>
<td>52</td>
<td>BS0051020L</td>
<td>BS0052020L</td>
<td>$73</td>
</tr>
<tr>
<td>0.50 (13)</td>
<td>4 (1.2)</td>
<td>104</td>
<td>BS0051040L</td>
<td>BS0052040L</td>
<td>$84</td>
</tr>
<tr>
<td>0.50 (13)</td>
<td>6 (1.8)</td>
<td>156</td>
<td>BS0051060L</td>
<td>BS0052060L</td>
<td>$90</td>
</tr>
<tr>
<td>0.50 (13)</td>
<td>8 (2.4)</td>
<td>209</td>
<td>BS0051080L</td>
<td>BS0052080L</td>
<td>$112</td>
</tr>
</tbody>
</table>

Other standard sizes and voltages available

IMPORTANT: Temperature controllers are required for heaters without a built-in temperature controller.

XTREMEFLEX® BIH AND BWH HIGH TEMPERATURE HEATING TAPES

- Highly flexible and durable
- BIH: 8.6 W/in² (0.013 W/mm²) watt density
- BWH: 13.1 W/in² (0.02 W/mm²) watt density
- Maximum exposure temperature:  
  - Removable & Reusable Use: Up to 572°F (300°C)  
  - Single Install Use: Up to 932°F (500°C)

BIH

<table>
<thead>
<tr>
<th>Tape Width (in mm)</th>
<th>Tape Length (ft)</th>
<th>Watts</th>
<th>Part No. 120 V</th>
<th>Part No. 240 V</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 (2.5)</td>
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<td>1.00 (2.5)</td>
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<td>BIH101020L</td>
<td>BIH102020L</td>
<td>$73</td>
</tr>
<tr>
<td>1.00 (2.5)</td>
<td>4 (1.2)</td>
<td>420</td>
<td>BIH101040L</td>
<td>BIH102040L</td>
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</tr>
<tr>
<td>1.00 (2.5)</td>
<td>6 (1.8)</td>
<td>620</td>
<td>BIH101060L</td>
<td>BIH102060L</td>
<td>$104</td>
</tr>
<tr>
<td>1.00 (2.5)</td>
<td>8 (2.4)</td>
<td>830</td>
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<tr>
<td>1.00 (2.5)</td>
<td>10 (3.0)</td>
<td>1045</td>
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<td>BIH102100L</td>
<td>$135</td>
</tr>
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<td>1.00 (2.5)</td>
<td>12 (3.6)</td>
<td>1250</td>
<td>BIH101120L</td>
<td>BIH102120L</td>
<td>$149</td>
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</tbody>
</table>

Other standard sizes and voltages available

BWH

<table>
<thead>
<tr>
<th>Tape Width (in mm)</th>
<th>Tape Length (ft)</th>
<th>Watts</th>
<th>Part No. 120 V</th>
<th>Part No. 240 V</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00 (25)</td>
<td>2 (0.6)</td>
<td>313</td>
<td>BWH101020L</td>
<td>BWH102020L</td>
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<tr>
<td>1.00 (25)</td>
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<td>BWH102040L</td>
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<tr>
<td>1.00 (25)</td>
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<td>BWH102060L</td>
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<tr>
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<td>BWH102080L</td>
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<td>1570/1567</td>
<td>N/A</td>
<td>BWH102100L</td>
<td>$162</td>
</tr>
</tbody>
</table>

Other standard sizes and voltages available

IMPORTANT: Temperature controllers are required for heaters without a built-in temperature controller.
**METAL-HOUSED HEATING MANTLES**

- Uniform heat distribution for round-bottom flasks
- Safe touch table-top design

**HEATING MANTLE WITH BUILT-IN CONTROL AND MAGNETIC STIRRER**

- Built-in time percentage temperature controller
- Built-in magnetic stirrer

**HEATING MANTLE WITH BUILT-IN CONTROL**

- Built-in time percentage temperature controller

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### Flask Size | Total Watts | Part No. 120 V | Part No. 240 V | Price
---|---|---|---|---
100 | 110 | HM0100MH1 | HM0100MH2 | $775
250 | 165 | HM0250MH1 | HM0250MH2 | $809
500 | 220 | HM0500MH1 | HM0500MH2 | $852
1000 | 325 | HM1000MH1 | HM1000MH2 | $906

**HEATING MANTLE WITHOUT BUILT-IN CONTROL**

- Temperature controller required for use with this heater
- Ideal for applications requiring tight temperature control

### Flask Size | Total Watts | Part No. 120 V | Price
---|---|---|---
50 | 55 | HM0050MC1 | HM0050MC2 | $328.60
100 | 100 | HM0100MC1 | HM0100MC2 | $331.85
250 | 150 | HM0250MC1 | HM0250MC2 | $338.30
500 | 200 | HM0500MC1 | HM0500MC2 | $367.43
1000 | 300 | HM1000MC1 | HM1000MC2 | $383.60
2000 | 500 | HM2000MC1 | HM2000MC2 | $454.78
3000 | 600 | HM3000MC1 | HM3000MC2 | $503.33
4000 | 750 | HM4000MC1 | HM4000MC2 | $648.90
5000 | 860 | HM5000MC1 | HM5000MC2 | $697.43
6000 | 1000 | HM6000MC1 | HM6000MC2 | $788.03

### Accessories:

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCLAMP</td>
<td>Support clamp for laboratory frame rods. Accommodates up to a 13 mm diameter rod.</td>
<td>$27</td>
</tr>
<tr>
<td>GFCI01</td>
<td>Converts a standard outlet into a GFCI protected outlet. For 120 VAC use, max 15A.</td>
<td>$27</td>
</tr>
</tbody>
</table>

### Replacement Stir Bar:

<table>
<thead>
<tr>
<th>Flask Size (ml)</th>
<th>Stir Bar Size (mm)</th>
<th>Part No.</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>100</td>
<td>15 x 30</td>
<td>SB15X30</td>
<td>$19</td>
</tr>
<tr>
<td>250</td>
<td>15 x 35</td>
<td>SB15X35</td>
<td>$21</td>
</tr>
<tr>
<td>500</td>
<td>20 x 40</td>
<td>SB20X40</td>
<td>$27</td>
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<tr>
<td>1000</td>
<td>20 x 50</td>
<td>SB20X50</td>
<td>$31</td>
</tr>
</tbody>
</table>

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**IMPORTANT:** Temperature controller is required for heaters without a built-in temperature controller.
**CUSTOM CLOTH HEATING MANTLES**

- Easily heat and insulate stills, evaporators, glass and stainless tubing, and custom configurations!
  - Diameters as small as ¼” (6mm)
  - Flanges, VCR nuts, valves, unistruts, etc.
- Any shape or size
- Uniform temperatures throughout entire line or component
- Easy on-off installation with durable and reusable hook and loop fasteners
- High temperature capabilities
  - Up to 1099°F (593°C)
- Patented grounded heating element

**Free Design Services!**

BriskHeat provides free engineering design and quotes for a solution to fit your exact heating needs. Contact your BriskHeat representative to learn more!

**SILICONE RUBBER GRIFFIN BEAKER HEATERS**

- Provides even heat distribution for Griffin and standard beaker heating applications
- Easy-to-install and remove with hook and loop fastener. Provides easy-access to graduation.
- Moisture and chemical resistant
- Maximum exposure temperature up to 450°F (232 °C)

**CLOTH HEATING MANTLES**

- Lower hemispherical heating mantle (other styles available)
- Uniform heat distribution for a variety of round bottom flasks
- Ideal for use with a basket ring stand
- Maximum exposure temperature up to 842 °F (450 °C)

<table>
<thead>
<tr>
<th>Flask Size (ml)</th>
<th>Watts</th>
<th>Part No. 120 V</th>
<th>Part No. 240 V</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>80</td>
<td>HM0100-HS1</td>
<td>HM0100-HS2</td>
<td>$168</td>
</tr>
<tr>
<td>250</td>
<td>180</td>
<td>HM0250-HS1</td>
<td>HM0250-HS2</td>
<td>$171</td>
</tr>
<tr>
<td>500</td>
<td>270</td>
<td>HM0500-HS1</td>
<td>HM0500-HS2</td>
<td>$184</td>
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<tr>
<td>1000</td>
<td>380</td>
<td>HM1000-HS1</td>
<td>HM1000-HS2</td>
<td>$213</td>
</tr>
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<td>3000</td>
<td>500</td>
<td>HM3000-HS1</td>
<td>HM3000-HS2</td>
<td>$268</td>
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<td>5000</td>
<td>600</td>
<td>HM5000-HS1</td>
<td>HM5000-HS2</td>
<td>$332</td>
</tr>
</tbody>
</table>

**IMPORTANT: Temperature controllers are required for heaters without a built-in temperature controller.**
CARTRIDGE HEATERS

BriskHeat Swaged Cartridges are the premier choice for the most demanding applications. Choose from over 10,000 configurations available for immediate delivery or let us design a unique custom heater for your special application.

Customize Your Cartridge Heater

- **Watt Densities:** Up To 300 W/in² (46.5 W/cm²)
- **Sheath:** 304 SS, 316 SS, or Incoloy
- **Lead Wire:** High-temperature Fiberglass, Teflon, Silicone Rubber, or SJO Cord
- **Termination:** Swaged-In Leads, Crimped-On Leads, Right Angle Leads, Braid, SS Conduit, Ceramic Beads, Straight Pins, and more
- **End-Seals & Potting:** Lava Seal, Cement, Teflon, RTV, EpoxyLite Potting, or Epoxy Potting
- **Fittings:** 304 SS, 316 SS, or Brass
- **Construction:** Double End, Post Terminal, Bent, End Tube, Spring Guard, Internal Thermocouple, Flanges, Mechanical Stops, or Square
- **Circuit Options:** Dual Voltage, Distributed Wattage, or 3-Phase

NOTE: Call 1-888-412-7406 for assistance in picking the proper product
Silicone Rubber Heating Blankets

- Suitable for a large range of surfaces and objects
- Moisture, chemical, and radiation resistant
- Exposure temperature range: -60°F to 450°F (-51°C to 232°C)

<table>
<thead>
<tr>
<th>Width</th>
<th>Length</th>
<th>Watts</th>
<th>PSA Adhesive</th>
<th>Part No. 120 V</th>
<th>Part No. 240 V</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>6 (152)</td>
<td>12 (305)</td>
<td>180</td>
<td>PSA</td>
<td>SRL06121P</td>
<td>SRL06122P</td>
<td>$84</td>
</tr>
<tr>
<td>6 (152)</td>
<td>24 (610)</td>
<td>360</td>
<td>PSA</td>
<td>SRL06241P</td>
<td>SRL06242P</td>
<td>$119</td>
</tr>
<tr>
<td>12 (305)</td>
<td>12 (305)</td>
<td>360</td>
<td>PSA</td>
<td>SRL12121P</td>
<td>SRL12122P</td>
<td>$119</td>
</tr>
<tr>
<td>12 (305)</td>
<td>24 (610)</td>
<td>720</td>
<td>PSA</td>
<td>SRL12241P</td>
<td>SRL12242P</td>
<td>$195</td>
</tr>
<tr>
<td>6 (152)</td>
<td>12 (305)</td>
<td>180</td>
<td>No PSA</td>
<td>SRL06122</td>
<td>SRL06122</td>
<td>$75</td>
</tr>
<tr>
<td>6 (152)</td>
<td>24 (610)</td>
<td>360</td>
<td>No PSA</td>
<td>SRL06241</td>
<td>SRL06242</td>
<td>$99</td>
</tr>
<tr>
<td>12 (305)</td>
<td>12 (305)</td>
<td>360</td>
<td>No PSA</td>
<td>SRL12121</td>
<td>SRL12122</td>
<td>$99</td>
</tr>
<tr>
<td>12 (305)</td>
<td>24 (610)</td>
<td>720</td>
<td>No PSA</td>
<td>SRL12241</td>
<td>SRL12242</td>
<td>$170</td>
</tr>
</tbody>
</table>

Note: Plug not included
Other standard sizes and voltages available

**IMPORTANT**: Temperature controllers are required for heaters without a built-in temperature controller.

Lynx Temperature Control System

- 1:1 PID control to EACH heater
- Easy to use Operator Interface (OI) and Temperature Control Modules
- Can be used independently or as a system of up to 1,024 zones of control
- Can connect to CMS via Modbus
- Sends email alerts
- Idle mode option saves energy and time during maintenance

There is a table for SDX PID Digital Temperature Controllers, but the content is not fully visible in the image.
SILVER-SERIES CLOTH JACKET INSULATORS

Silver-Series Insulators are a configurable system of cloth insulators that feature durable high-temperature cloth, needle-punched fiberglass insulation, and hook & loop closures for easy installation and removal. This cost-effective solution improves thermal efficiency for hot and cold pipes, tanks, and vessels in industrial and commercial environments. Custom designs can be manufactured for unique requirements.

- Configurable system
- Easy-to-install
- Removable and reusable
- Economical solution
- Cut-to-length
- Moisture/chemical resistant
- Durable design
- Long service life
- High-temperature
- Fire-retardant
- Asbestos-free

Specifications:
- **Operating Temperature**: Up to 450°F (232°C)
- **Cloth**: polymer-coated fiberglass
- **Insulation**: 1 in (25 mm) needle-punched fiberglass
- **Thermal Performance**: R3.3, K0.21@75°F (24°C)
- **Ingress Protection Rating**: IP54

NOTE: Call 1-888-412-7406 for assistance in picking the proper product

ABOUT BRISKHEAT

BriskHeat offers a full range of surface and immersion heating solutions. We help our customers decrease downtime, increase throughput, and maximize profits. Large projects or small, high volume or low, domestic or world-wide, BriskHeat stands by to help you with any surface or object heating application you might encounter. With an accessible staff of sales and application engineers experienced at helping you find the most economical solution for your needs, BriskHeat is your heating specialist.