

THC Remediation, 3.7 - 12.2 kg/day

Hemp extracts and distilled oils typically have THC levels between 2% and 4%. In order to be compliant, the THC levels must be reduced to less than 0.3%.

THC remediation is accomplished with reverse phase flash chromatography. Several models from bench top to industrial scale support this application.

ITM-420, 12.8 cm Column

Load per Run	270 g
Load per Day	6.2 kg
T-Free Output	3.7 kg

ITM-5015, 20 cm Column

Load per Run	700 g
Load per Day	20.3 kg
T-Free Output	12.2 kg

MP-5XL, 45 cm Column

Load per Run	3.4 kg
Load per Day	102.5 kg
T-Free Output	61.5 kg

MP25-XL, 100 cm Column

Load per Run	16.7 kg
Load per Day	463 kg
T-Free Output	277 kg



Pilot and process scale instruments are built to specification and utilize hydraulic piston columns with inner diameters from 20 cm to 100 cm.

The output data is based on running 24 hours a day. The output oil is diluted in solvent which can be recovered. After solvent recovery the oil will have a THC content less than 0.3%

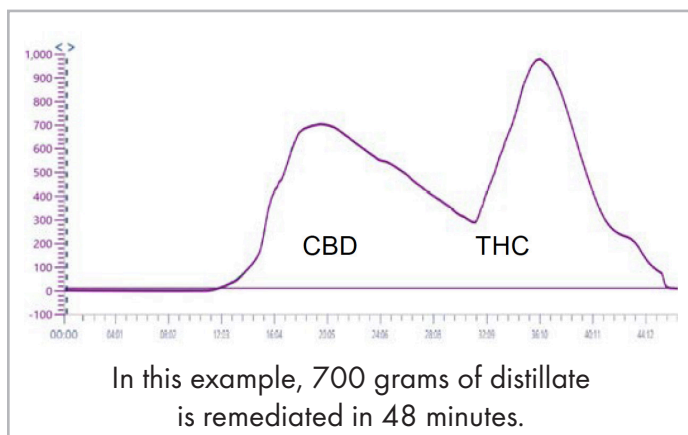
Due to variability in the cultivation and manufacturing processes the THC-Free ($\leq 0.3\%$ THC) output value is a realistic expectation but does not constitute a guarantee.

Interchim is a well-established manufacturer of low and high pressure chromatography instruments. The company was founded in 1970 to create innovative products for pharmaceutical R&D. Years of experience have been applied to provide the CBD market with a simple and cost effective purification solution.

Refer to the following page for more details.

The large touch screen interface displays all operating parameters of the method in progress. A UV detector detects the cannabinoids which are collected in 1 Liter flasks or diverted to carboys beneath the instrument.

Continuous operation is programmed using multiple cycles in the software.



Daily Throughput, 24 Hours

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Daily throughput is running three shifts for 24 hours. The feedstock is a third pass distillate with >80% CBD and 2-4% THC. A typical fraction scheme is 1) CBG/CBD 2) CBD 3) CBD/CBN/THC 4) CBC/THC.

Solvent Consumption, 24 Hours

ITM-420

Liters Gallons

Water	52	14
Methanol	301	80
Acetone	8	2

ITM-5015

Liters Gallons

Water	182	48
Methanol	902	238
Acetone	25	7

MP-5XL

Liters Gallons

Water	818	216
Methanol	5488	1450
Acetone	209	55

MP-25XL

Liters Gallons

Water	3946	987
Methanol	25089	6629
Acetone	670	177

The solvent recovery system for this process has a feed rate of 2 L/min. (2880 L/day). The feedstock is the diluted oil from the liquid chromatography and the output is water, methanol and oil. Ethanol can be substituted for methanol but is less desirable for solvent recovery.

Continuous Operation



Rank	Method name	Sample name	Cycles	Column	User name	Status
1	5015 THC Remediation	200420-AB1	11	MJRP-40x20 cm	admin	Waiting

Continuous operation is achieved by assigning the number of "Cycles" in the sample queue in the chromatography software. The number of cycles is the number of loads of distillate you wish to process in a shift. At the end of each 48 minute method, a new distillate load will take place in the next cycle.

Consumable Cost

		Media Qty.	Price	Cost/gram
ITM-420 12.8 cm Column			\$9,950	\$0.61
ITM-5015 20 cm Column Media	\$1500/kg	7 kg	\$10,500	\$0.25
MP-5XL 45 cm Column Media	\$1350/kg	35 kg	\$47,250	\$0.23
MP-25XL Steel 100 cm Column Media	\$1350/kg	174 kg	\$236,250	\$0.23

The media in the column has a finite lifetime and will require replacement. In this example the lifetime is 100 cycles. The cost/gram is the replacement cost of the media after 100 cycles.

Process Flow

