

Extraction of Tear Gas: Chloroacetophenone (CS), o-Chlorobenzylidenemalononitrile (CN), and trans-8-methyl-N-vanillyl-6-nonenamide (OC) From Cloth for GC/MS Analysis Using: 200 mg Clean Screen® Extraction Column



UCT Part Numbers

ZSDAU020		ZCDAU020
Clean Screen® DAU	Or	Clean Screen® DAU
10 mL, 200 mg sorbent		10 mL, 200 mg sorbent
Without Tips		With CLEAN-THRU® Tips

Procedure:

1. Prepare Sample

- If suspected tear gas is on clothing cut out a portion of the sprayed area and a "negative" control sample. Extract each into hexane. For canisters of suspected tear gas, spray onto a Kimwipe® and extract the sprayed area and a negative control into hexane.

2. Condition Clean Screen® Extraction Column

- 1 x 3 mL CH₃OH.
 - 1 x 3 mL D.I. H₂O.
 - 1 x 1 mL 100 mM phosphate buffer (pH = 6).
- Note:** Aspirate at < 3 inches Hg to prevent sorbent drying.

3. Apply Sample

- Load sample at 1 mL/minute.

4. Wash Column

- 1 x 3 mL D.I. H₂O.
- 1 x 3 mL Hexane.
- Dry column (5 minutes at > 10 inches Hg).

5. Elute Analyte

- 1 x 1 mL CH₃OH.

6. Dry Eluate

- Evaporate to dryness at < 40°C.

7. Reconstitute

- Add 200 µL CH₃OH. Mix/vortex. Transfer to GC/MS vial and cap.

8. Quantitate

- Inject 1-2 µL sample onto GC/MS.



GC/MS Conditions	
Column	HP Ultra 1, Crosslink Methyl Silicone 12 m x 0.2 mm I.D. x 0.33 µm film thickness
Initial Temp.	100 °C. Initial Time = 3.00 min
Ramp	17 °C /min
Final Temp	305 °C
Final Time	3.0 min
Injection Port Temp	250 °C
Transfer line Temp	280 °C
SCAN Acquisition	41 amu to 400 amu: Start time = 2.00 min
Retention times	Compound CN CS OC. RT (min.) @4.9 @7.4 @13.4

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