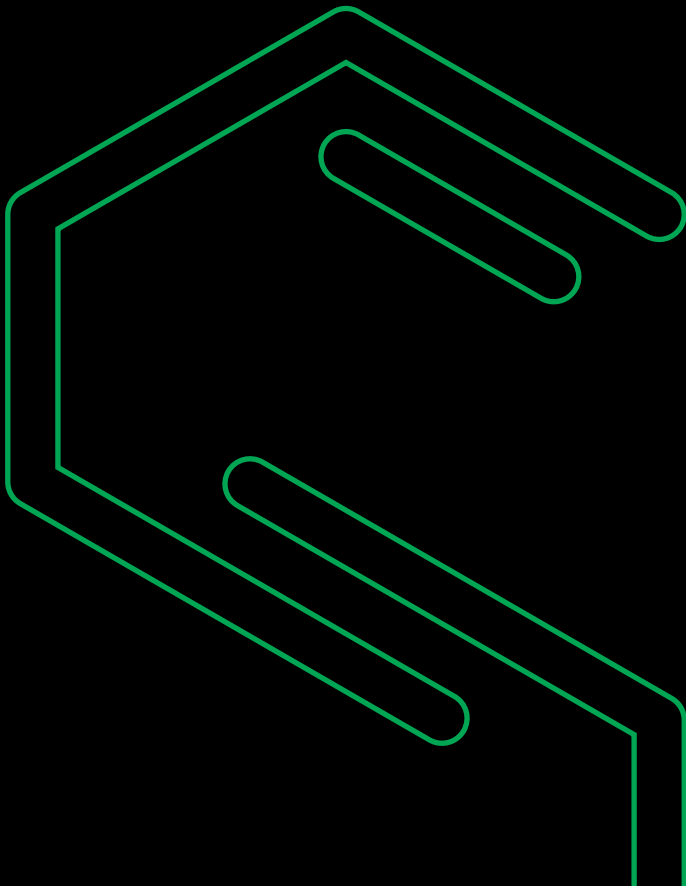


PAPER SUMMARY

RAPID ANALYSIS FOR ILLICIT
DRUGS AND CHEMICAL
PROFILING OF FINGERPRINTS



CONCLUSION

- Fast analysis of forensic (fingerprint) samples
- Identification of drugs (fentanyl, heroin, cocaine) at low pg level in only 2 min
- Setup well-suited for mobile systems (low power consumption, no additional gases)
- Identification of individual persons based on the chemical profile of their fingerprints
- No complex sample preparation

SETUP

- In-house built thermal desorption device
- High-resolution LTQ Orbitrap XL mass spectrometer (Thermo Scientific)
- Full scan mode
- Resolution of 30,000

RESULTS

DRUG ANALYSIS

- Direct thermal desorption of samples completed in only 2 min
- Exact mass of fentanyl, heroin, cocaine at pg level
- Ionized as protonated molecules
- LOD 54 (fentanyl), 5 (heroin) and 15 (cocaine) pg

RESULTS

CHEMICAL PROFILE

- SICRIT® desorption device is highly effective for ionizing lipid classes
- PCA plots show separation between fingerprints of different individuals even over multiple days
- Highest accuracy for full spectrum and DAG