

Case Study

Turkey at the Crossroads: Targeting illicit drug traffic with Gemini analyzers

The illicit drug trade is global, but preferences for specific drugs is in fact local. In one country, heroin may be the recreational drug of choice, for any number of reasons, while in another, cocaine, or a deadly synthetic opioid such as fentanyl may be the dominant one. Slowing the flow of the drug trade requires an intimate knowledge of why certain drugs are favored in specific areas, and better tools for detection and analysis at these points.

Traditional colorimetric drug testing and analysis kits, used by law enforcement, have shortcomings. Samples must be handled extensively, which increases a user's exposure to highly potent and dangerous drugs such as fentanyl and its derivatives. Also, the test methods are reliable for only a very limited number of drugs. Synthetic opioids, or chemical variations (analogs) of specific known drugs are continuing to proliferate and are becoming ever more difficult to detect. They might be cut with legal substances such as caffeine in order to 'fool' the testing kits or be of slightly different chemical composition to avoid test method detection.

For this reason, newer and better portable drug analyzers such as the Thermo Scientific™ Gemini™ Analyzer have



been developed. The portable Gemini can accurately recognize thousands of different substances on the spot, at the point of interdiction,

and have extensive drug signature 'libraries' onboard. It's no longer necessary to wait for results from a lab in order to detain a suspected drug trafficker; and no matter where in the world illegal drugs are a problem, there is now positive identification of the substance or substances available.

Going Bananas

Recently, two big narcotics seizures in Turkey illustrated the power of these advanced analysis capabilities. Back in June of 2021, Turkey's trade minister, Mehmet Mus, announced that 1.1 ton of cocaine was seized at a port in the country's south, dubbing it the largest seizure of the drug in Turkish history. Agents of Turkish Customs conducted both seizures. Customs officers, working for the ministry and the local police department in Mersin confiscated the drugs. Acting on a tip, the cocaine was discovered in a container of bananas aboard a ship arriving from Ecuador. Authorities displayed the cocaine, in 1,000 packages, to the press. The amount is largest since authorities confiscated 800 kilograms of cocaine aboard a vessel at a port in northwestern Kocaeli province in 2018. Last year, 540 kilograms of cocaine were also seized at the same port, both arriving from South American countries.



Turkey is a transit route in drug smuggling between Asia and Europe. The nation fights a constant battle against the proliferating illicit drug trade in the country. South America is the primary source of cocaine and similar drugs smuggled into Turkey, for both domestic use and as a transit point for smuggling to Asian countries. In 2020, counter-narcotics police conducted 140,000 operations and seized 20 tons of marijuana, 11 tons of heroin and 800 kilograms of cocaine. Customs officers at the borders and ports of the country seized 9.7 tons of drugs last year.

Murat Cihan, deputy police chief of Mersin province, told reporters that the operation was launched on a tip-off that cocaine would be shipped to the port aboard a banana-laden cargo vessel bearing the Liberian flag. He added that they have been working in coordination with customs officers for about one month conducting surveillance of the ship and that there might be “arrests” related to the record haul. “This is one of the biggest seizures for us as well,” Cihan said. In 2019, Mersin police also seized 615 kilograms of cocaine at the port.

Gemini at the Crossroads

With so many different drugs entering and passing through Turkey to other destinations, Turkey has a potent ally in its fight, the Gemini Analyzer. Gemini is the world’s first and only handheld integrated Raman and FTIR spectroscopy instrument, capable of identifying more than 14,500 individual substances, solids and liquids from narcotics to explosives and chemical warfare agents to industrial chemicals and precursors using a comprehensive onboard library that can be edited and customized so that it is always up to date. Raman and FTIR spectroscopy are highly specific and reliable identification methods, each with its own strengths, thus

perfectly complementing each other. By integrating both into a single analyzer, users harness the power of each technology while enabling a broader range of chemical identification. The Gemini analyzer allows users to quickly switch between analysis techniques, and receive robust

analysis information more quicker than ever without the need to sacrifice capability for weight. Integrating these technologies into a single instrument enhances a user’s ability to successfully identify unknown substances, yet



reduces the logistical burden of using multiple devices. The analyzer provides accurate onboard identification of unknown substances, including mixtures of up to four components, all automatically performed without any additional steps needed from the user. This minimizes ambiguity, improves speed of operation, and increases user safety. Gemini has a broad spectral range of 250-2875 cm⁻¹ (Raman) and 4,000 cm⁻¹ to 650 cm⁻¹ (FTIR). This ensures a broader identification capability, including chemicals/drugs that have spectral information at the upper and lower end of the range. Furthermore, Raman enables a user to conduct non-contact and non-destructive analysis of samples in transparent and translucent containers without the need to open them and manipulate each sample, thus increasing user safety. Conversely, although FTIR requires direct contact analysis, it is more efficient and safer when identifying dark-colored substances such as black tar heroin. It also has fewer chemical limitations and performs better on substances that suffer from very high levels of fluorescence, which sometimes obscures Raman spectra. Both technologies thus complement each other as well as confirm results obtained by each other.



Turkish Customs currently possesses 30 Gemini units, and as such is the owner of the second biggest fleet of Gemini Analyzers among Customs organizations in the EMEA (Europe, the Middle East and Africa). BLG Defense Industry Inc., Thermo Scientific’s distributor in the region, is helping law enforcement in Turkey stem the flow of illegal narcotics by providing this advanced analytical instrumentation from Thermo Scientific.

Turkish Customs has the fleet of Gemini analyzers positioned at different border gates, and as a result, enforcement officers have seized tens of tons of narcotics since 2015.

Captagon by the Ton

Recently, Turkish Customs teams confiscated more than a ton of Captagon drug pills at the Mediterranean port of Iskenderun in southern Turkey. It was the biggest seizure of its kind, Mehmet Mus reported. A total of 1,072 kilograms (2,000 pounds) of Captagon drugs, more than 6.2 million pills, were seized during a search by customs officials. The contraband, worth over \$37 million, was found hidden in 17 containers brought to the port for transit to the United Arab Emirates.

Captagon has been referred to as “The Jihadists’ Drug”. It was first manufactured in 1961 as an alternative to amphetamine and methamphetamine to treat narcolepsy, fatigue, and behavioral disorders. Dexamphetamine was already being used by the military to enable soldiers to stay awake for long periods of time and to “enhance courage and bravado”. The “Captagon” used by the Islamic Forces (ISIS or ISIL) and other extremist groups to enhance their soldiers abilities was supposed to be a milder version of these medicines. But by the 1980s the U.S. government



declared it a controlled substance with no currently accepted medical use. Manufacturing of the drug ceased, but illegal manufacture continued and has recently escalated during the past few years in Europe and the Middle East. Some sources suggest Captagon is one of the more popular recreational drugs among affluent youth in the Middle East. Illegally-manufactured Captagon combines several highly addictive stimulants with compounding actions into one pill.

The 17 containers were filled with – innocently enough – stones typically used for decoration purposes. Narcotics detection dogs inspecting the cargo reacted to the stones and aroused the suspicions of Customs officials. Stones that were suspected of containing drugs were broken and were found to have hidden transparent packages filled with narcotics pills. But what were the pills? Now it was Gemini’s turn, in the second phase, after the narcotics detection dog



had reacted. Customs Officials took several samples from different containers and stones, analyzed them with the Gemini, and all the results indicated Captagon. (See screen shots/images).

The results were telling. Counterfeit versions of Captagon the drug are very popular in the Middle East, especially in Syria, where its fear-inhibiting and stimulating effects have also proved useful during protracted firefights in war-torn areas. This seizure occurred in a region that is very close to the Syrian border. Geographically, Turkey is like a bridge between Asia, Europe, and Africa. Hence, all manner of illicit trafficking occurs on that bridge, with literally tons of narcotics seized during the past 5 years. As an example, a total of 1.5 tons of cocaine were seized by Customs officials in exactly the same region over the course of just two months.

The *World Drug Report 2020* released by the United Nations Office on Drugs and Crime (UNODC) in 2020 highlights Turkey's success in drug seizures but warns that the country remains a popular route for drug smuggling to Europe. The



report, based on 2018 data, says the largest total quantity of heroin seized by a country that year was Iran, followed by Turkey, the U.S., China, Pakistan, Afghanistan and Belgium. Turkey seized 0.7 tons of opium, 0.4 tons of morphine and 19 tons of heroin in 2018. According to the report, Turkey seized 62% of the heroin and morphine in the region outside Asia. Turkey accounted for 95% of heroin and morphine seized in eastern and southeastern Europe.

Turkey also leads in methylenedioxymethamphetamine (MDMA) seizures in Europe, according to European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Between 2017 and 2019, Turkey seized more than 8 million pills, larger than the total number confiscated by European countries.

Turkey is working hard to stem the flow of illegal drugs across its borders, and Gemini is helping. Turkish Customs has the fleet of Gemini analyzers positioned at different border gates, and as a result, enforcement officers have seized tens of tons of narcotics since 2015. Other than its success in the border gates, Gemini plays a deterrent role especially in the airports. Customs officials reportedly favor the device because it's so easy to use and they can identify suspicious substances right on the spot.

Conclusion

As illicit drugs continue to proliferate and synthetic drugs 'morph' into formulations more difficult to detect, hope for stemming the flow of them across international borders will depend upon advanced analyzer technologies that can change as fast, or even faster, than the chemistries involved. In Turkey, as in many other global hot spots for drug manufacture and smuggling, Customs and drug interdiction agents have been using traditional narcotics test kits, but those kits are effective against a very limited range of narcotics. Agents using these kits couldn't identify most of the narcotics they seized, so they were sending the samples to a lab and waiting for 2-3 days for the results, an unacceptable delay. Gemini uses both Raman and FTIR technology for complementary and confirmatory results. Gemini is armed with an extensive library that can be constantly updated as well as shared with other Gemini instruments in other Customs offices and law enforcement locations throughout the country and even the world. The library can be edited and customized, and constantly kept up to date with the latest substance information. It won't become obsolete, because updates can be plugged in, keeping agents always on the cutting edge and ahead of the game.

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