

Fingerprint Drug Testing

A Revolution for Workplace Drug Screening



White Paper



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Understanding the impact of drug misuse in the workplace

With almost 1 in 10 UK workers admitting to recent drug use^[1], and 16% of UK employers saying that they have had suspicions about staff members being under the influence^[2], it is clear that drug misuse is a serious concern when it comes to health and safety in the workplace.

Workplace drug use can not only put the well-being of individual employees at risk, but also their colleagues and the general public – particularly in industries where employees are responsible for handling industrial plant or machinery, or in key sectors such as public transport or logistics. Indeed research suggests that drugs and alcohol contribute to 26% of workplace accidents, which can cost the UK £4 billion every year^[3].

Tackling drug misuse effectively has many potential health and safety benefits for a business and for its employees. Absenteeism and compromised productivity can be reduced, as can the risk of accidents caused by impaired judgement. Offering support to employees who declare, or are found to have, a drug-related problem can also contribute towards improving employee mental health and morale. This has the overall effect of enhancing the reputation of an organisation as a safe and caring employer.



Meeting legislative requirements for drug misuse

A range of health and safety legislation is already in place that clearly sets out how tackling drug misuse is an employer requirement in order to maintain a safe workplace. Under the Health and Safety at Work Act 1974, for example, it is a general duty for managers to ensure – as far as is reasonably practicable - the health, safety and welfare at work of employees. Similarly, under the 1992 Transport and Works Act, it is a criminal offence for certain workers to be unfit through drugs and/or drink while working on railways, tramways and other guided transport systems. The Misuse of Drugs Act 1971 also highlights how it is an offence for managers to knowingly allow the taking of drugs on workplace premises.

So, given all this legislation, how can employers ensure they meet their legislative obligations? HSE Drug Misuse at Work recommends that the best way to deal with employee drug use is to have a clear drug misuse policy in place that forms part of an employee's contractual obligations.

Employee drug testing has a critical role to play in workplace drug misuse policies

Employee drug testing has an important role to play in underpinning an active and effective workplace drug misuse policy. Testing regimes vary and need to be defined within specific company policies. They can range from pre-employment screens to post-incident investigations – and may also include random screening of all employees, or simply those in safety-critical roles.

Company drug policies tend to conform to one of two approaches: they either have a zero tolerance attitude to drug use where employees are required to abstain from drug use at all times; or they have a 'fitness for duty' approach where employees are expected to be unimpaired by drugs at work, although what they choose to do outside work is their own business, so long as they are not under the influence when they come to work.

Drug screening clearly has a valuable role to play in terms of promoting health and safety within the workplace. However, implementing an effective drug testing programme can prove challenging when using traditional point-of-care drug tests that typically involve the collection of urine or saliva samples. There is also a growing view that these approaches may take up more time, planning and expense than is needed to support a company's drug screening policy.

Organisations need to think carefully about selecting the drug testing approach that best meets their own specific requirements. Workplace drug testers will know, for example, that urine or saliva testing can be unhygienic, time-consuming and undignified. They will also recognise that the longer window of detection offered by urine testing can be less beneficial for fitness for duty testing as drug use several days earlier – at the weekend, for example – may be detected even though the employee is no longer under the influence at the time of testing. That's why employers need access to a portfolio of workplace drug testing



approaches, so they can apply the testing method that's most appropriate for each specific testing scenario and to their company's drug testing policy.

For urine-based tests, sample collection is sometimes observed in order to reduce the chance of sample adulteration or substitution. This requires gender-specific collection staff and specially prepared collection areas, not only increasing the cost of screening but also limiting an employer's ability to carry out spontaneous or off-site tests.

While oral fluid (saliva) testing is simpler and more versatile than urine screening, saliva remains a biohazard and can prove difficult to collect if an individual has a dry mouth – a common side effect of many drugs, both illicit and clinically prescribed. Urine or saliva tests also present an issue when testers need to dispose of samples once a drug screening test is complete. Handling and disposing of biohazardous body fluids and bulky body fluid collection kits is an unpopular, messy task that adds to the cost of each test and also results in unnecessary environmental waste disposal activities.

Until now legitimate practical factors have often frustrated the implementation of screening programmes across a range of safety-critical sectors, including transport, manufacturing, logistics and construction. Given this, it is perhaps easy to see why many workplaces find drug screening difficult. There is clearly a requirement for a simpler, quicker, cost-effective and less invasive approach to workplace drug testing.

Addressing trade union concerns around workplace drug testing



The TUC recognises that employers must comply with the health and safety legislation already in place to tackle drug misuse in order to maintain a safe workplace. With the launch of its 2019 'Drug Testing in the Workplace' guidance^[4] for workplace representatives, the TUC is reiterating its position that the use of mind-altering substances – whether legal or illegal – has no place in the workplace.

However, in its latest report the TUC also stresses the need for employers to negotiate 'a comprehensive drugs and alcohol policy that addresses these issues in a fair, open and non-judgemental way'. This is perhaps a recognition that, until now, drug testing in the workplace has often been challenging. Factors such as the potential requirement for gender-specific staff to supervise some types of sample

collection, and the need for separate prepping and sample collection areas for traditional drug screening methods such as urine testing, can result in significant inconvenience, costs and hygiene concerns. Given this, it's perhaps easy to see why many workplaces have found drug screening difficult.

Employers need to negotiate 'a comprehensive drugs and alcohol policy that addresses these issues in a fair, open and non-judgemental way'

2019 Drug Testing in the Workplace, TUC

Intelligent Fingerprinting - bringing greater convenience and flexibility to workplace drug testing

A new and convenient way to screen for workplace drug misuse is to collect and analyse fingerprint sweat. In common with body fluids such as urine and saliva, the sweat of a drug user contains tell-tale drugs or drug metabolites which have been excreted by the body. These substances are detectable in minute amounts of sweat, even in the traces of a person's fingerprint.



Now, with the revolutionary Intelligent Fingerprinting Drug Screening System, simultaneous fingerprint drug testing for multiple drugs of abuse is a reality for UK employers.

The test is quick, easy-to-use and non-invasive, providing a hygienic and dignified means of supporting a wide range of workplace drug testing scenarios – from pre-employment screens and random drug tests to post-incident investigations. Sample collection takes seconds and results are available in 10 minutes.

Customer case studies confirm that the fingerprint sweat approach is particularly applicable for workplace drug testing as its shorter window of detection can deliver intelligence about whether there has been employee drug use in the period immediately prior to their working shift.

With the revolutionary Intelligent Fingerprinting Drug Screening System, simultaneous fingerprint drug testing for multiple drugs of abuse is a reality for UK employers.

Supporting end-to-end drug testing, from the initial screening test to laboratory confirmation

With its innovative fingerprint-based solution, Intelligent Fingerprinting supports all types of workplace drug testing, from initial non-invasive drug screens through to laboratory analysis, which provides a confidential confirmation service when the reassurance of an evidential test result is needed.

In a workplace drug testing scenario, the initial drug screen typically involves rapid screening at the employee's place of work – whether that's in the office, on the road or an off-site location – helping those responsible for health and safety to be alerted to potential drug abuse issues quickly and easily.

An organisation's drug policy should clearly explain what happens next if the initial drug screening test is positive. Regardless of the type of screening test carried out, a further test – where samples are returned to an accredited laboratory for analysis – is usually required to confirm a positive result.

Following a positive fingerprint drug screening test, Intelligent Fingerprinting's clearly defined laboratory confirmation testing process is instigated to ensure an end-to-end chain of custody protocol before and during analysis at the laboratory. The dedicated Fingerprint Collection Kit

for Laboratory Analysis is used to collect two further sets of fingerprint samples which are anonymously identified using unique barcodes and returned to an independent testing laboratory for certified analysis using liquid chromatography mass spectrometry technology.



Delivering more effective drug misuse policies





Fingerprint-based drug screening provides organisations with a cost-effective and practical way of delivering more effective drug misuse policies, supporting health and safety initiatives, discouraging drug use, and – critically – helping to reduce drug-related accidents and identify those employees who might require additional support. And, because the solution is fingerprint-based and easily deployed at any time, it is difficult to anticipate or to cheat.

Fingerprint drug testing is easy to implement wherever and whenever it is needed. With the fingerprint method, employers can carry out drug testing at a time and place to suit, without advance preparation. A set of fingerprint samples is all that is needed to detect multiple substances

and, within minutes, the Intelligent Fingerprinting portable reader provides a negative or positive screening result for each drug in the test. Consequently, employers are quickly alerted to potential issues, allowing them to act according to their organisation's drug misuse policy.

In addition, the fingerprint-based test can be carried out by one person with minimal training requirements, and features none of the privacy, hygiene or waste disposal issues associated with conventional body fluid tests. This makes it an ideal option for businesses looking to support truly random and spontaneous workplace testing as part of their employment policies.

Key benefits of fingerprint drug testing

-  **Enabling faster, simpler implementation of effective workplace drug policies** - offering a timesaving, hygienic and cost-effective method of random drug screening employees whenever and wherever testing is needed.
-  **Respect for employee privacy and dignity** - reducing reliance on the invasive collection of biohazardous body-fluid samples, and removing the requirement for gender-specific staff to supervise urine sample collection
-  **Supporting fitness for duty, for cause and post-incident testing within the workplace** - with customer feedback indicating that the fingerprint-based solution is easier to use and more convenient than traditional drug testing methods
-  **Reduced environmental waste** – unlike conventional plastic urine cup tests which are bulky, typically weigh between 50-100g each, and become a biohazard when used, the Intelligent Fingerprinting Drug Screening Cartridge is compact and weighs just 11g, so it is easy to store and transport, making it ideal for workplace testing.



How fingerprint drug testing maps onto TUC and ICO guidelines

Combining the TUC's drug testing guidance for unions with the good practice recommendations set out in the Information Commissioner's Office (ICO) Employment Practices Data Protection Code provides a useful framework for organisations looking to introduce a testing programme that would secure union consent.

To help support those in search of an appropriate drug testing approach for their own organisation, Intelligent Fingerprinting has outlined below how key elements of the ICO/TUC recommendations and checklist are enabled by fingerprint-based drug testing:

ICO good practice recommendations and TUC drug testing checklist	
ICO/TUC recommendations	Fingerprint-based drug testing
1. Only use drug or alcohol testing where it provides significantly better evidence of impairment than other less intrusive means	1. Fingerprint-based drug testing offers a shorter window of detection, providing a quick and dignified way of identifying potential employee drug misuse in the period immediately prior to their working shift. Removes the chance of picking up Saturday night usage on a Monday morning when there's little risk of impairment or impact on fitness for duty
2. Use the least intrusive forms of testing practicable to deliver the benefits to the business that the testing is intended to bring	2. The Intelligent Fingerprinting System features a rapid, discreet screening process that relies solely on collection of fingerprint samples, ensuring that fingerprint-based drug testing is the least intrusive drug testing method available
3. Limit testing to those substances and the extent of exposure that will have a significant bearing on the purpose(s) for which the testing is conducted	3. The four-panel Intelligent Fingerprint drug screening cartridges test for the most prevalent drugs of abuse, limiting the extent of the test and providing the most applicable detection window for fitness for duty (up to 14/16 hours vs up to 2 days for oral fluid and up to 4 days for urine testing)
4. Testing is carried out by a laboratory accredited by the UK Accreditation Service (UKAS)	4. Initial 'presumptive positive' screening results can be verified using Intelligent Fingerprinting's ISO 17025 certified laboratory confirmation test service
5. Testing should be part of an effective and agreed workplace drug and alcohol policy which aims to support those with drug or alcohol problems	5. With its comprehensive screening and confirmation service, fingerprint-based drug testing complements effective and agreed workplace drug and alcohol policies – at all times in the least intrusive and most dignified way
6. Drug testing is only done after impairment testing has been carried out and there is evidence that the person may be impaired as a result of drugs	6. Intelligent Fingerprinting can provide organisations with drug awareness training and help with drug policy development and reviews
7. Privacy when giving a sample, with the TUC suggesting that having another person in the room for urine testing is unreasonable and 'a breach of human rights'	7. Its non-invasive nature means that fingerprint drug testing is both dignified and supports the key requirement for privacy during workplace drug testing where urine collection is otherwise involved

Convenient window of detection

Fingerprint-based testing, with its shorter window of detection, proves particularly helpful for drug testing in the workplace - giving organisations a simple and dignified way of identifying potential employee drug use in the period immediately before or during their working shift.

This directly supports the TUC's guidance requirements, helping employers to not only meet their Health and Safety at Work obligations but also support their ongoing duty of care towards their employees. And, if the initial screening test is positive, the result can be verified by an ISO 17025 certified laboratory using a fingerprint-based confirmation test service.

In contrast, urine-based tests offer a longer window of detection of potentially up to four days. This means an employee could screen positive via a urine test, and possibly be suspended from work as a result of drug use a few days earlier, despite being fit for duty at the time of the test.

The fact that Intelligent Fingerprinting's drug testing approach not only addresses the challenge of *'telling an employer what they want to know'*, but also does this in the least intrusive and most dignified way, makes it an optimal drug test method for workplace drug testing.



The shorter window of detection offered by fingerprint drug testing proves particularly helpful for drug testing in the workplace - giving organisations a simple and dignified way of identifying potential employee drug use in the period immediately before or during their working shift.

The Intelligent Fingerprinting Drug Screening System – how it works

The Intelligent Fingerprinting Drug Screening System consists of a small, tamper-evident Drug Screening Cartridge (for sample collection) and the portable DSR-Plus, which reads the Cartridge to provide the drug screening results.

Intelligent Fingerprinting offers several fingerprint-based drug screening tests including:

- DSC 5-Plus Drug Screening Cartridge – detects opiates, methamphetamine, cocaine and cannabis
- DSC 8-Plus Drug Screening Cartridge – detects opiates, methadone, benzodiazepines and buprenorphine

How the fingerprint drug screening test is carried out:

1. First, ten fingerprint sweat samples (one from each finger) are collected onto the Drug Screening Cartridge (Figure 1) sample application pad, in a process which takes less than a minute.
2. After sample collection, the tester slides the Cartridge's protective cover across the pad, and it locks into place to prevent tampering or contamination.
3. Next, the Cartridge is activated by depressing the buffer clip. This releases buffer solution into the Cartridge which contains reagents that have been configured to detect the presence of drugs (and/or their metabolites) within the collected fingerprint sweat sample. The fingerprints are dissolved during this process.
4. The Cartridge is inserted into the DSR-Plus (Figure 2).
5. The tester follows the simple touch-screen instructions and analysis begins.
6. In 10 minutes, the test results are displayed on the DSR-Plus touchscreen, providing a positive or negative indicator for each of the drug groups in the screening panel.
7. The screening results can be printed using a separate portable label printer (available as an accessory) to provide a permanent record. Anonymised details of the sample donor are entered into the DSR-Plus as part of the analysis procedure and this information, along with the time and date, is recorded on the results print-out, which is important where evidence continuity is required.



Figure 1 – Intelligent Fingerprinting Drug Screening Cartridge:

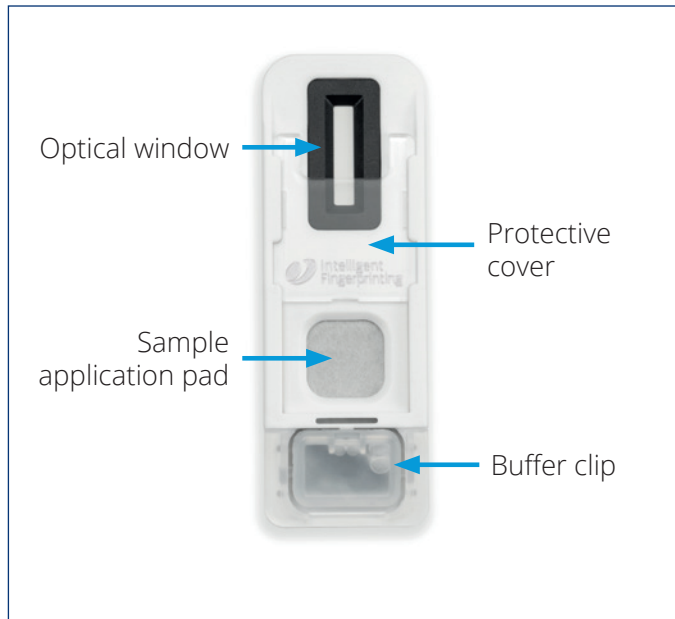


Figure 2 – Intelligent Fingerprinting DSR-Plus:



The Cartridge uses lateral flow assay technology and fluorescence-labelled antibodies to selectively detect specific drugs and drug metabolites in the eccrine sweat collected from fingerprints. Metabolites are chemicals produced by the body's metabolic processes when a substance is ingested or injected. Detection of specific metabolites in body fluids such as fingertip sweat can indicate recent drug use.

The portable DSR-Plus is a highly sensitive, robust and effective fluorescence measurement instrument which is used to read the Cartridge, providing a positive or negative drug screening result for multiple drugs of abuse simultaneously.

Confirmatory laboratory testing

Should an employee receive a positive screening result for any of the tested drugs – in contravention of their company's drug policy – then it is imperative that the organisation is unequivocal about the accuracy of the test before any sanctions are applied. To address this, Intelligent Fingerprinting provides a separate ISO 17025 certified fingerprint-based confirmation test service using its Fingerprint Collection Kit for Laboratory Analysis.

This kit is used to collect two sets of fingerprint samples - using anonymous barcodes for identification – which are then sent to an independent, ISO 17025 certified testing laboratory for verification of the original positive test results using Liquid Chromatography Mass Spectrometry techniques.



About Intelligent Fingerprinting

Launched in 2017, Intelligent Fingerprinting's portable Drug Screening System works by analysing fingerprint sweat. It is non-invasive, fast and cost-effective, with sample collection taking seconds and simultaneous screening for multiple drug groups in ten minutes. A laboratory confirmation service is also available.

The system has applications within many sectors and customers include employers in safety-critical industries such as construction, transport and logistics firms, drug treatment and family safeguarding organisations, as well as UK coroners. The company has distributors across the globe, including the USA.

Founded in 2007, Intelligent Fingerprinting is a spin-out company from the University of East Anglia (UEA). The company is based in Cambridge, England and employs around 30 people.

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