ALERT PRO
(PRO1000)

Real-Time Airborne Asbestos Monitor and Warning Device

User Guide

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Section 1 Background and Introduction to the ALERT PRO

Before operating your ALERT PRO please carefully read this User Guide along with any safety or warning labels on the unit itself. This Guide should be adhered to but must be considered in conjunction with the relevant health and safety regulations for the user country and any other specific site controls to ensure the unit is used safely and as intended.

Retain this document and circulate it to anyone who will be using the ALERT PRO. A PDF version can be found on the Alert web site, should you require additional copies.

Non-adherence to this guide may impair the ALERT PRO's effectiveness and could invalidate the warranty.

Any text in a red warning box is of critical safety importance and is not to be ignored

Any text in a green box is the recommended course of action of optimal use

1.1 Intended Use

Refer to Annex 3 on page 22 for examples of various use cases & benefits of the ALERT PRO.

Alert Technology's ALERT PRO is unique - it is the world's first early warning unit which, unlike other fibre monitors available, is capable of distinguishing between airborne asbestos fibres and other non-asbestos fibres in real time.

A risk reduction tool, the ALERT PRO provides an early warning and first line of defence for professionals working in environments where a risk exists of disturbing unknown or unidentified asbestos containing materials which could result in employees, the public, or equipment being inadvertently exposed to, or cross contaminated by, airborne asbestos fibres.

Additionally, for those companies professionally engaged in active asbestos remedial works with identified Asbestos Containing Materials, the ALERT PRO can assist in monitoring in real time fibre releases caused by planned works, minimising unintentional release, leaks, and the resulting exposure, particularly on live work sites.

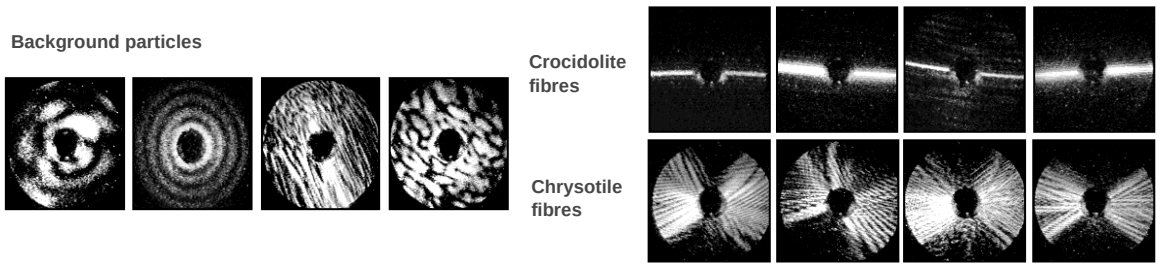
The ALERT PRO is designed to rapidly detect local short-term fibre releases caused by mechanical abrasion, such as drilling, sanding, demolition, etc. Housed in a tough and portable case, it is ideal for use in indoor environments where remedial work is being undertaken.

Asbestos surveys are of great value, but do not always identify all asbestos containing materials in a building's structure and can vary in accuracy. Having an ALERT PRO unit reduces the risk of continued and unknown exposure by warning the user of the presence of airborne asbestos, so that they may react in a suitable manner. Equally, it offers great benefit where planned works on identified asbestos containing materials can be monitored throughout the process, overall minimising the chances of unintended release, exposure and contamination.

1.2 How it Works

The ALERT PRO works by passing an airflow through a pair of laser beams. Particles within the airflow interact with the beams and create scattering patterns. The system detects when this has occurred and captures a cross section of the "scattering pattern" for analysis.

The “scattering pattern” produced is akin to a fingerprint by which the particles may be identified. Fibres and asbestos fibres have a characteristic scattering pattern which enables the ALERT PRO unit to differentiate them from other particles.



Asbestos has a characteristic that is almost unique[1] amongst fibrous materials. It is paramagnetic which means that whilst it does not exhibit a strong magnetic field, it experiences torque from a magnetic field that causes it to align with the field.

The ALERT PRO measures the changes in alignment of fibres through a magnetic field to distinguish asbestos fibres from non-asbestos fibres. The ALERT PRO unit records this behaviour and uses it to determine the probability of asbestos being present, to a confidence level of 99%.

1.3 Accuracy

Once the ALERT PRO has detected several fibres, it performs a statistical analysis to determine whether asbestos is present within that population. That confidence level of the reading is 99%.

For example, if over the period of an hour pass 10,000 particles through the instrument, of which 250 are fibrous and 100 of the 250 are crocidolite. The unit will tell that it has detected 250 fibres and that it is 99% confident that there are asbestos fibres within that population, but without quantification of the number of the various asbestos fibres.

1.4 Applications

Lightweight, portable and easy to use, the ALERT PRO is most suitable for use in ambient indoor environments where the fabric of a structure is to be disturbed through maintenance, construction, restoration, improvements and demolition.

Designed to rapidly detect local short-term fibre releases, caused by mechanical abrasion, the ALERT PRO is relevant to numerous global industry sectors including:

- Asbestos Abatement / Removal
- Construction and Demolition
- Maintenance and Renovation
- Facilities Management
- Waste Management
- Occupational Hygiene / Environmental Monitoring
- Emergency Services and Military
- Railways/Underground Transportation
- Tunnelling and Mining
- Marine and Shipbuilding
- Nuclear Decommissioning

[1] Certain types of man-made fibre, such as steel or magnetically engineered fibres, may have similar magnetic properties to those of asbestos and could therefore be wrongly assessed as asbestos. However, unlike asbestos, such fibres are not normally found in the airborne environment where building, renovation or demolition work is being undertaken.

1.5 Benefits and Features

The ALERT PRO has a number of benefits:

- Real-time early warning for airborne asbestos
- Distinguishes airborne asbestos fibres from non-asbestos fibres
- Enables activity-based risk assessment
- Helps track fibre levels in real-time
- Works on all asbestos fibre types
- Easy to use - no training needed
- Helps reduce cross contamination
- Provides post event data reports

Please see Annex 3 ALERT PRO - Use Cases and Benefits for more detailed information.

Section 2 Important Safety and Use Information

2.1 Safety Information

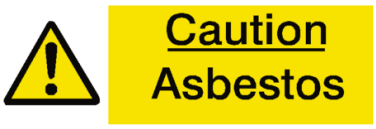
The ALERT PRO should ONLY BE DISASSEMBLED BY COMPETENT AND QUALIFIED PERSONNEL at Alert Technology Ltd (ATL) or at ATL approved service centres.

RISKS - DO NOT OPEN THE METAL TOP PLATE OF THE DEVICE. The unit contains the following which pose serious risk to your health and will also invalidate your product's warranty:

CLASS 1 LASER PRODUCT

No risk of exposure exists when the ALERT PRO is used as recommended. However, the ALERT PRO unit uses **CLASS 3B lasers in a fully enclosed optical housing**, beneath the top plate of the unit, which if accessed could cause ***irreparable eye damage***.

DO NOT REMOVE THE METAL TOP PLATE.



ASBESTOS CONTAMINATION

All personnel engaged in decontamination must follow the regulated health and safety protocols as described in the current legislation. External decontamination of the ALERT PRO will be required after use in asbestos containing areas.

The ALERT PRO unit is fitted with an internal HEPA filter that will capture particles and fibres which means there is no risk of asbestos fibres being expelled from the systems exhaust.

However, there is a risk of asbestos fibres inside the unit's tubing, filters and the optical chamber, which means opening the metal top plate to access the internal workings and optical chamber poses a serious risk of exposure to asbestos fibres.

DO NOT REMOVE THE METAL TOP PLATE. ONLY COMPETENT QUALIFIED PERSONNEL IN AN APPROPRIATE ASBESTOS CONTAINMENT SETTING SHOULD DISASSEMBLE THE UNIT

IF THE TOP PLATE IS REMOVED THE WARRANTY IS VOID

2.2 Training

Operating the ALERT PRO unit itself does not require specific training. Its purpose of providing early warning if materials with asbestos are damaged, resulting in release of asbestos into the air, implies that the user is working with asbestos. The user should therefore be trained to work safely with

decontamination of asbestos. Everybody must follow the health and safety protocols, as laid out in the current legislation for health and safety guidance in the country in which the unit is in use.

We strongly recommend calling in the professionals to assist with the safe removal of asbestos, resulting in the decontamination and the clearance of such. If you are not professionally trained to work with asbestos and you do disturb asbestos, see "What To Do If You Discover or Accidentally Disturb Asbestos During Your Work" in the annex as a very basic guide of what to do.

2.3 Limitations of Use

Clearance level – The ALERT PRO works on a low air flow of 50 ml/minute and was designed to detect short-term fibre releases caused by mechanical abrasion. The unit does not work down to clearance levels ***in real time*** (< 0.01 fibres/ml) and as such is not meant for the wide scale external monitoring of environments or to provide clearance level monitoring.

Quantification and Concentration – The ALERT PRO provides a "**Yes / Suspected / No**" response. It does not currently identify the specific type of asbestos or quantify the concentration of asbestos and as such is not intended as a measurement device or as a replacement to traditional Phase Contrast Microscopy or Transmission Electron Microscopy asbestos testing, but as a complementary risk reduction tool and early warning alarm.

Asbestos Type – The ALERT PRO works on both amphibole and serpentine asbestos types, but it cannot identify the type of asbestos fibre found. However, potential for future differentiation exists due to distinctive differences between the observed properties of the materials.

Solid Asbestos – The ALERT PRO provides analysis of airborne particles and fibres and as such will not analyse or provide a result for solid asbestos containing materials (that are not releasing fibres into the air).

World Health Organization Fibres – As the ALERT PRO uses the light scattering pattern to define a fibre, it doesn't currently match the World Health Organization's (WHO) fibre counting rules and is not intended to replace traditional methods of asbestos analysis. The ALERT PRO can identify the presence of asbestos fibres to 99% confidence in real-time, based on the air sample taken at that given moment.

Unique Paramagnetic Fibres – Certain types of man-made fibres, such as steel or magnetically engineered fibres, may have similar magnetic properties to those of asbestos and could therefore be wrongly assessed as asbestos. However, unlike asbestos such fibres are rarely found in the airborne environment where building, renovation or demolition work is being undertaken. Due to its fibre morphology, serpentine asbestos (Chrysotile) has a lower paramagnetic threshold than amphibole asbestos.

2.4 Recommended Usage Procedure

The ALERT PRO unit should be switched on prior to entering any area suspected of containing asbestos and left running until after de-contamination.

This will ensure that a positive pressure is maintained in the unit's case which will help to prevent any asbestos fibres entering the unit.

Section 3 Feature and Accessories

3.1 Features and Technical Information

- Self-Monitoring
- User configurable settings
- LED & Audible alarm
- 256 x 128 LCD Screen
- Onboard memory 8GB
- Historical data
- USB A & B ports
- Easy to download data via USB stick
- Rugged, easy to decontaminate case

3.2 Included with ALERT PRO

Batteries and Charger
Comes with:

- 1 x 15v Lithium-Ion rechargeable batteries
- Battery charger unit
- Charger cable

Metal Top Plate

- Made from mild steel that is finished with a heat baked powder coat paint finish which protects the mild steel from rusting and secured with tamper proof screws
- Contains USB A port (for downloading data gathered by the unit to USB and uploading system firmware and software)
- Battery connector port

3.3 Battery and Charger

The ALERT PRO is supplied with a Lithium-Ion rechargeable battery pack. A fully charged battery should allow between 8-10 hours continuous use. Please take the time to fully charge a battery before first use of the ALERT PRO. Full charging may take several hours (>5). The battery charge level is indicated on the display of the ALERT PRO. To charge the battery, join the battery cable and charger cable prior to connecting the mains supply. The charger utilises a single LED that provides an indication of charge state by colour as follows:

- Red *Discharged* – constant current charge phase
- Amber *Partial charge* – constant voltage charge phase
- Green *Charge complete*



Do not allow batteries to remain in direct sunlight.

Battery storage and transport environment:
-25°C to +85°C and 15 % to 93 % Relative Humidity

Battery operation environment:
+5°C to +40°C and 15 % to 93 % Relative Humidity

3.4 Other Features

- Front panel LEDs
  - "POWER" LED indicates the current power status (battery level)
  - "ALERT" LED indicates the current unit and sampling status (alerts/warnings)
  - Both LEDs are used to indicate a system error (Flashing Blue or White)
- Internal buzzer
  - The unit will emit an audible beeping when it alarms (this may be disabled by the user)
- USB Ports
  - USB A for memory sticks
  - USB B for engineering support only

Section 4 Using the ALERT PRO

4.1 Front Panel Controls

The ALERT PRO's front panel contains three function buttons and four navigation buttons:

- The Power button ⏻ starts the unit (hold for 3 seconds) or brings up the shutdown option when the unit is running.
- The ENTER (↵) button is used to select the current menu option or to confirm an option
- The MENU button is used to return to the previous menu, or the first item on the top menu
- The 🡅 and 🡇 buttons are used to move up and down menus or form inputs.
- The 🡄 and 🡆 buttons are used to change settings values in forms.

4.2 Turning On and Off

To turn the unit on and off:

- When connecting the battery the unit will start automatically
- To power-down the unit, press the power button and then press ENTER (↵) to confirm
- To re-start the unit (with battery connected), press and hold the power button for 3 seconds

It is recommended that the unit is powered-down before removing the battery to prevent any data loss or corruption.

4.3 Self-Tests

At start-up the unit will perform a number of self-tests to check the integrity of the system components. Failure of any component will be reported on the unit's screen and should be reported to customer support.

The tests include briefly starting and stopping the internal air pump and *chirping* the audible alarm.

4.4 Display Screen

When the unit initially starts, the user is presented with the Alert splash screen, followed by several system self-check screens.

The user may be asked to confirm on some screens using the MENU button, for example when the unit is nearing its servicing date.

Once the unit has completed its start-up, the user is presented with the main menu, consisting of options detail below.

4.5 Main Menu

The main menu shows the following options:

Sampling – this option allows the user to start a sampling session by simply pressing ENTER (↵) on the keypad.

Disk Options – displays information about the storage available on the disk and allows users to copy data files to a USB stick (sampling data, archived data and log data).

System Info – displays information pertaining to the unit, such as the next date the service is due, the unit serial number and build information.

Alarm History –gives information from the last time the unit was in use including the time and date of the last session and if asbestos was present during that session.

Settings – user settings such as:

- System settings – see section 4.6
- Date and Time, Time-zone and Daylight Saving
- Language
- Administration menu (see Section 5 below)
    - Firmware update (supplied by the Manufacturer/Distributor by email; to be uploaded via USB)
    - Other system maintenance functions
- Engineering menu (password protected for use by Alert Technology approved personnel only)

Demo Mode – demonstrations of how the unit will respond in a number of scenarios.

4.6 System Settings

The ALERT PRO comes with several options that are user configurable:

Audible Alarm – The audible buzzer can be disabled.

Alarm Timeout – Defaults to 20 seconds.

Screen Brightness and **Backlight timeout**– Users can set this value between 10 seconds and 1 hour.

Fibre Count Timeout – see section 4.7.

4.7 Counts During Sampling

During a normal sampling session the unit tracks the total number of fibres, as well as total amount of other particles that the unit has observed. The unit also takes a ten second count of these values and stores them into the user orientated data files.

To give the user an idea of what the unit is seeing at that exact moment, a ‘Current Fibres’ has been added to the unit. The ‘Current Fibres’ count refreshes every 30 seconds (user configurable in the System Settings menu).

4.8 Warnings and Alarms

During the normal operation of the device, the unit will respond in multiple ways depending on whether it considers asbestos to be or have been present during a sampling session.

When a sampling session begins, the unit starts in the Green clear alert state. This signifies that the unit has not and is currently not considering asbestos to be present.

The Yellow alert state signifies that the unit is considering that asbestos may be present. Due to the way the detection works, the unit in this state has not yet seen enough material to consider it a positive result. This state will remain for a timeout of at least ten seconds before returning to the Green clear state, if asbestos is not seen.

The Red warning state signifies that the unit considers asbestos to be present. A message will appear on the screen, along with the unit logging the time at which this event occurs. It will also increment the count of alerts that have occurred during the current sampling session. The unit will flash the red LED and the buzzer will sound. The buzzer will continue to sound for 30 seconds and then stop if no further asbestos is seen, if the buzzer continues to sound this indicates asbestos is being seen by the unit at least every 30 seconds. When asbestos is present and the red LED is flashing there will be an option on the screen to stop the buzzer from sounding for a user-selectable time or to disable the

buzzer for the remainder of the sampling session. If no option is chosen then the buzzer will continue to sound each time the unit considers asbestos to be present.

The Purple warning state occurs once the unit has considered asbestos to be present during a sampling session, but is not currently indicating that asbestos is present. This becomes the default state, instead of the Green clear state. When a Yellow alert occurs from a Purple warning state, the unit will return to the Purple "seen" warning asbestos state.

The Blue alert state signifies that a system fault has been determined during the operation of the unit. The unit will then go into maintenance mode and prevent the normal operation of the device. During this mode sampling sessions cannot be started, but users will be able to remove data from the unit.

The White alert state indicates a total failure of the system. It may be possible to restart the unit to clear this failure by disconnecting and reconnecting the battery.

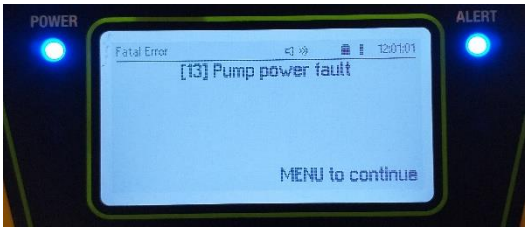
4.8.1 Warnings/alarms Summary

- **Green Light** - No Asbestos Seen / All Clear / Unit in Operation
- **Yellow Warning** - Asbestos Suspected
- **Red Alarm** - Asbestos Present
- **Purple Alarm** - Asbestos Seen in the sampling session but not at present
- **Blue Fault** - System Fault – Maintenance required – Contact customer support
- **White Error** - System Failure – Contact customer support

Example of unit in sampling mode that has seen Asbestos during the active sampling session but is not currently in a state of alarm.

The Purple LED indicates that asbestos has been seen; the screen shows number of Alarms (4) and time of last alert (15:07:31).

4.8.2 Reporting Faults



Should your unit develop a fault, please note down any on-screen messages and communicate these to customer support.

4.9 Retrieving Data

4.9.1 To USB Stick

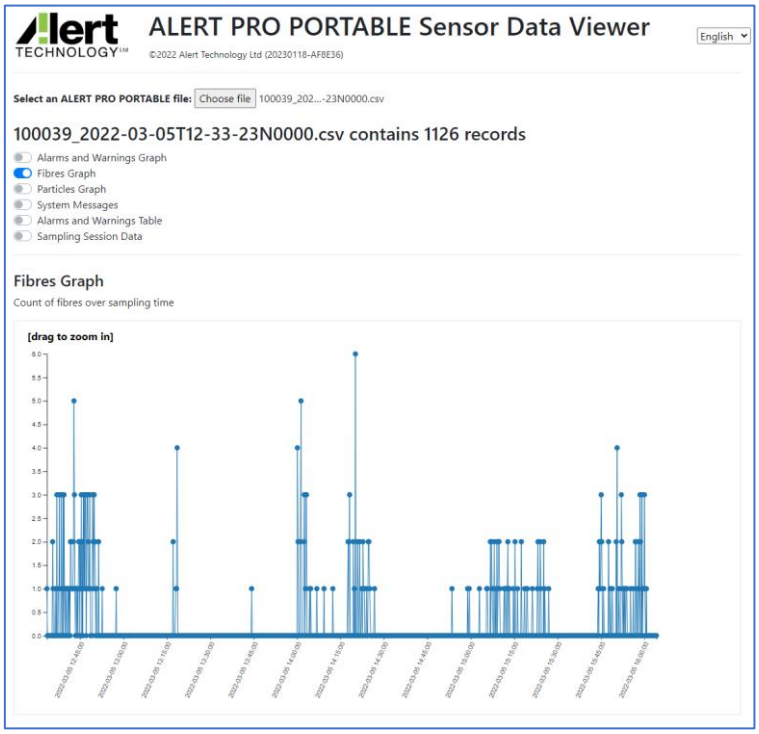
- Insert a USB stick into the USB-A port in the top plate
- An icon will appear on the top band of the screen to indicate that the USB stick has been recognised
- Select Disk Options and press ENTER (↵)
- Select USB Disk and press ENTER (↵)
- Select Copy User Data and press ENTER (↵)
- You will be prompted to press ENTER (↵) to confirm
- While the data is copying the screen will show "Copying" and the number of files copied

- Once copying is complete the screen will show “Copy Complete” along with the total number off files copied
- Press MENU to exit
- Once files have been removed from the unit they are transferred into archived data. If these files need to be removed again, follow the same process but rather than copying user data, select “Copy Archived Data”

4.10 Data Visualisation

After data has been copied from the ALERT PRO onto a USB Stick it can be visualised using Alert’s on-line utility.

- Save data files onto PC or laptop
- Browse to the web address https://viz.alertpro.tech/
- Click on “Choose File” & select the data file for review
- The data can be displayed in various ways & can be printed



Section 5 Administration Functions

The Administration menu (located under the Settings menu on the main menu) provides access to a number of configuration options and system maintenance functions.

5.1 Accessing the Administration Menu

The Administration menu is locked with a PIN code. The default code is 1234.

If you change the administration PIN, please write the new PIN down in a safe place. If you lose the PIN the unit will have to be returned to a service centre to unlock the unit.

5.2 Administration Settings

5.2.1 Save Raw Triggers

This is ENABLED by default and should only be changed if requested by ATL customer support.

5.2.2 Hide Service Date

This is DISABLED by default. When enabled, the service reminder screen is not shown at system start. Note that this does not affect the operation of the unit in any other way.

5.2.3 Sensitive Mode

This is DISABLED by default (normal mode).

- In “normal mode”, the unit will give a yellow warning alert state signifying that the unit considers that asbestos may be present, followed by a red alarm signifying that the unit considers asbestos to be present.
- In “sensitive mode”, the unit will immediately give a red alarm when it considers that asbestos may be present

See section 4.8 for more details on warnings and alarms.

5.3 Firmware Update

Alert Technology or your distributor will supply occasional software updates as “.hex” files.

1. Save the update “.hex” file to a USB stick (note that there must only be one such file on the memory stick)
2. You must have the administration PIN to perform this operation (the default PIN is 1234)
3. Select the following menu options:
   Settings -> Administration -> PIN -> Firmware Update -> ENTER (↵) to confirm
4. The unit will attempt to load the new update and then restart
5. If the update fails please contact customer support

5.4 Format Disk

This option may be used to remove all data stored on the unit’s internal hard drive.

5.5 Other Options

Other administrative functions should only be used with guidance from ATL customer support.

Section 6 Support, Servicing and Warranty

6.1 Technical Support

For support, please contact the local Alert Technology Ltd distributor; a list is available on the Alert Technology website.

6.2 Storing the Unit

The ALERT PRO should be stored with the lid closed and latched. Please keep in a dry location and avoiding extremes of temperature.

6.3 Servicing

The ALERT PRO has been thoughtfully designed to perform checks on start-up and ongoing health checks during normal operation. Should any critical parameter become out of limits, the system will display an appropriate screen message, indicating whether there is a user operable correction or if the unit requires attention from an approved Alert Service Centre.

WARNING! There are no user serviceable items inside the unit. Under no circumstances must the top plate of the unit be removed by anyone except an Alert Technology Ltd trained service engineer at an approved facility. The internal filter and other components may contain traces of asbestos fibres.

6.4 Warranty

Please refer to the Terms and Conditions (T & C) for full details of the Warranty.

Alert Technology Ltd. warrants that on delivery, and for a period of 12 months from the date of delivery (**Warranty Period**), the goods shall:

- 5.1.1 conform in all material respects with their description in the Quotation;
- 5.1.2 be free from material defects in design, material and workmanship;
- 5.2 Subject to clause 5.3, if:

  5.2.1 the Customer gives notice in writing during the Warranty Period within a reasonable time of discovery that some or all the Goods do not comply with the warranty set out in clause 5.1.1 then in that event;

  5.2.2 Alert Technology Ltd. is given a reasonable opportunity of examining such Goods; and

  5.2.3 the Customer (if asked to do so by Alert Technology Ltd.) returns such Goods to Alert Technology Ltd.'s place of business at the Customer's cost. Alert Technology Ltd. shall, at its option, repair or replace the defective Goods, or refund the price of the defective Goods in full.
- 5.3 Alert Technology Ltd. shall not be liable for the Goods' failure to comply with the warranty in clause 5.1.1 if:
  a) the Goods and/or Services are used or relied upon if a suspected fault develops (or is suspected) or is notified on the device's display as a "system message" ('Fault'). Furthermore, the Customer will immediately notify Alert Technology Ltd. in writing of the Fault or the suspected Fault;
  b) the Goods have been tampered with (including removal of the metal top plate) and if they are not used and operated strictly in accordance with Alert Technology Ltd.'s specific written and/or oral instructions;
  c) the Goods have not been serviced by Alert Technology Ltd. (or another third-party service centre as specified and approved by Alert Technology Ltd.) on an annual basis or as the dictated by the devices system messages;

d) the Goods have been re-calibrated by anyone other than Alert Technology Ltd. (without prior written approval);
e) all external and internal power sources to the Goods are not suitable, free from any interruption and defect and connected precisely in accordance with Alert Technology Ltd.'s prior written instructions;
f) if the Goods are used for any other purpose other than the purpose specified by Alert Technology Ltd.;
g) if the Goods have been used beyond the life span particularly specified by Alert Technology Ltd.

Annex 1 Frequently Asked Questions

What is the probability of false positives i.e. the system alerting on non-asbestos fibres?

ALERT does not make a decision based on a single fibre to avoid the chance of false positives. To reach its statistical confidence level of 99.98% ALERT will analyse 10-30 fibre rotations in as little as a few seconds, depending on the number of fibres in the sample air, before making a decision.

Can the ALERT distinguish the different groups of asbestos fibres (i.e amphibole vs. chrysotile)?

Both groups of asbestos are dangerous and ALERT detects both but it does not currently distinguish between them. However future development of our analysis software may enable differentiation between the two groups by combining intelligent analysis of the scattering pattern and differing magnetic susceptibility between asbestos types.

Will extremely dusty environment distort the ALERT's results?

ALERT has been tested and alerted for asbestos in very dusty demolition environments. However a heavy concentration of dust particles in the airborne environment may lead to the asbestos detection time being slightly increased. Similar to traditional air filter sampling, a high concentration of airborne particles may also decrease the performance of the unit.

Does ALERT detect respirable asbestos fibres as defined by WHO's definition (diameter less than 3µm, length greater than 5µm and a length to width ratio of greater than 3:1)?

ALERT assumes that no asbestos fibre is safe and so doesn't discriminate based on size. We detect particles that are both larger, and smaller than those defined as respirable by the WHO, since if there are respirable fibres present in the air, then in all likelihood there are non-respirable fibres too, and we want to measure as many as possible as quickly as possible to provide a rapid warning.

Does the use of an ALERT negate the need for the approved Stage 3 Clearance Air Tests?

The first of its kind, ALERT is intended as an early warning device designed for use by professionals who might disturb or damage asbestos during the course of their work. Its objective is to offer a vital first line of defence where none currently exists to ensure people are not subjected to prolonged unintentional exposure caused by work or proximity. It was not designed for post-abatement, clearance or constant air monitoring at very low fibre concentration levels. Therefore in its current stage ALERT is a complementary technology and not a replacement for current methods for asbestos monitoring.

Can ALERT give me an asbestos fibre count and concentration level?

An indicative particle and fibre count is provided along with an alert as to whether if enough fibres have rotated for ALERT to make a statistical analysis to 99.98% confidence that airborne asbestos fibres are present or not in the sample analysed. It does not currently provide a count of asbestos fibres or concentration levels of asbestos fibres within that population.

How is the ALERT kept asbestos free? Does it expel asbestos through the system and how is it to be cleaned post use?

Sample air drawn through the unit passes through a sealed disposable HEPA-CAP filter before reaching the pump ensuring no contaminated air is expelled. It also uses a particle-free sheath air flow around the sample air which means asbestos fibres (or other particulates) in the sample airflow are very

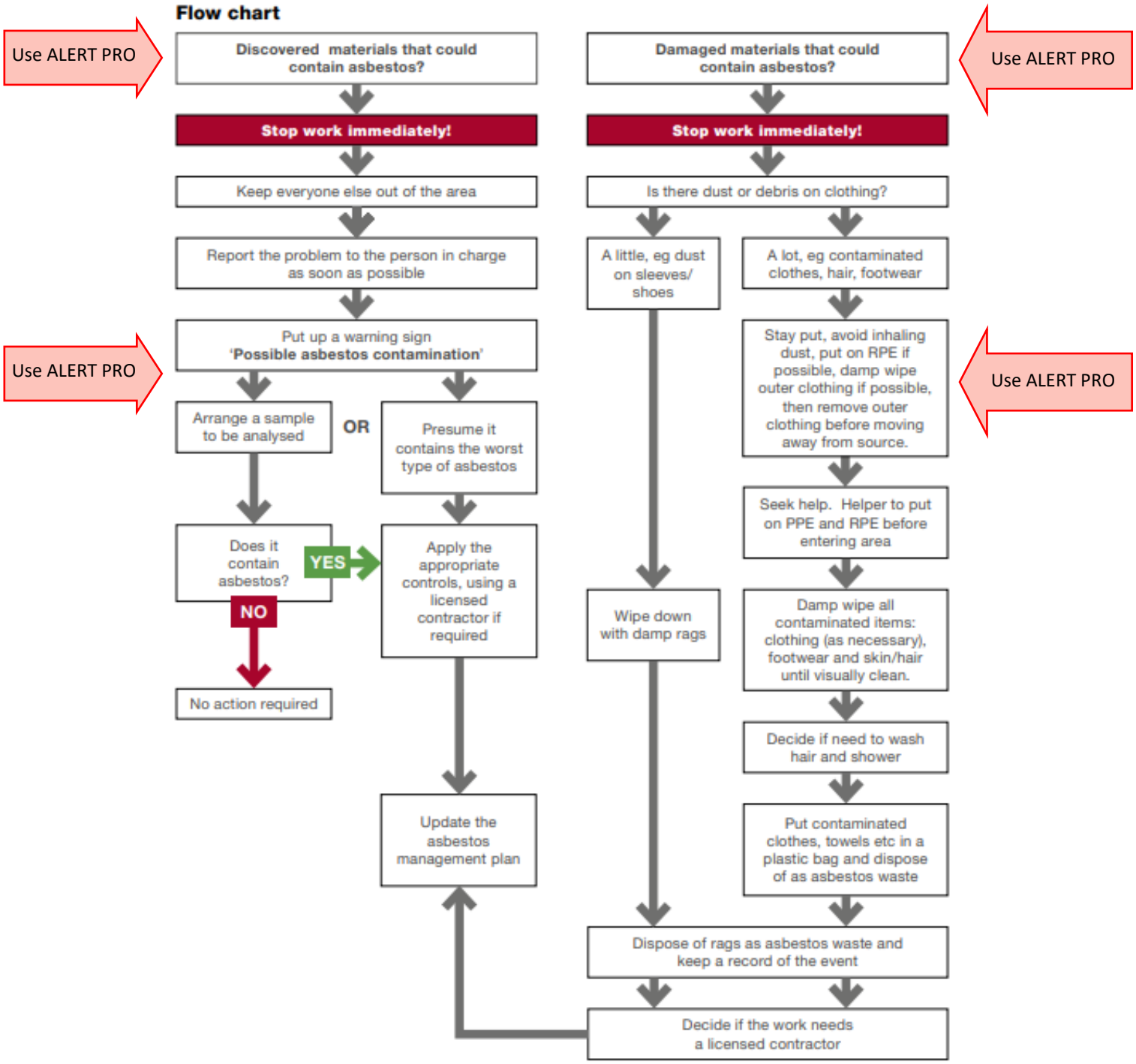
unlikely to come into contact with the mechanical structure and detection zone underneath the metal top plate until they reach the aforementioned HEPA filter. However to minimise any potential risk to the user, only Alert Technology personnel are authorised to remove the ALERT top plate which allows access to the inner mechanics and optical detection chamber. Should the tamper proof fastenings indicate removal the product warranty will be void. Potential contamination at the entry point of the sample inlet tube is possible and needs to be wiped clean after use, as is the case with the conventional statutory filter-sampling equipment. ALERT's rugged plastic case is capable of a thorough wipe down and misting after use as long as water is not sprayed directly into the air inlet. The device should not be submerged.

How do I know if the ALERT is functioning correctly and when it requires a filter change or service?

ALERT is programmed to run through a number of health checks on start-up, testing: filter and airflow, laser power, battery and storage memory. If the system registers a fault both LEDS on the display panel will flash blue and the ALERT will not function. A system error will be noted on the screen and also via the System Messages when your ALERT is connected via PC to the ALERT Data Viewer software. ALERT's software will also advise you on the display screen.

Annex 2 "What To Do If You Discover or Accidentally Disturb Asbestos During Your Work"

The following is an extract from the Health and Safety Executive's Guide (EM1).



Annex 3 ALERT PRO - Use Cases and Benefits

Please note that the ALERT PRO only detects airborne asbestos.

Potential User	Usage Case	Feature	H& S Benefits	Commercial Benefits
▪ Asbestos Consultancy ▪ Asbestos Removals Contractors ▪ Confined Space Workers	Confined Space Working	Real time awareness of asbestos/fibre levels pre-entry	Reassurance that anyone is not entering an area that is contaminated, if it is contaminated the alarm will sound.	Efficient identification of risk ensuring appropriate management is planned and not reactive reducing costs.
		Real time monitoring during survey	Confirmation that no asbestos has been disturbed during access of works, if the alarm sounds asbestos has been disturbed. Reduction on prolonged exposure and more widely spread contamination.	Real time identification of risk reduced potential for widespread contamination reducing remediation costs.
		Review of data post survey to identify activities that released fibres if alarm was triggered	The ability to understand more about potential alarms and fibre levels in the confined space. High fibre levels may present risks outside of those presented by asbestos.	If you can specify the time of fibre increase, you can identify more accurately the activity or product that lead to the release of fibres.
▪ Asbestos Consultancy ▪ Asbestos Removals Contractor ▪ Specialist Contractors ▪ Property Owners ▪ Facilities Management	Entering Potentially Contaminated Areas	Real time awareness of asbestos levels when gaining access	Prevention of direct exposure	Reduced liability costs, reduced remediation costs, reduction of anxiety in potentially exposed employees.
		Fibre level tracking	Prevention of contamination of additional areas	If upon entering specific areas fibre levels increase, management of the area can be more accurately delivered.
		Data review	Reduction in cost for managing risk	Through analysis of fibre levels management can be more efficient saving money through investigation and knock on delays.
			Identification of hot spots through fibre peaks & troughs	

Potential User	Usage Case	Feature	H& S Benefits	Commercial Benefits
▪ Asbestos Consultancy ▪ Asbestos Removal Contractor ▪ Facilities Management ▪ Health & Safety Teams ▪ Property Owners ▪ Specialist Contractors	Activity Based Risk Management	Fibre level tracking	The ability to identify the specific time of fibre release, this enables the review of the activity or activities that may have caused this. In turn, enabling the management of risk by reducing or removing high risk activities or the asbestos.	Traditional asbestos management will highlight a particular product risk but not any activities that are specifically increasing that risk. Guidance based on a survey and traditional air monitoring may identify one particular product as causing the most risk when actually it is another. Our ability to not only alarm when asbestos is released but also review fibre levels across timestamped data enables the review of specific activities and the impact they have on fibre levels, in turn increased fibre levels may lead to asbestos release.
		Real time alarm	The earlier the presence of airborne asbestos is known, the earlier the risk can be appropriately managed.	Where an alarm is triggered, asbestos is present, if asbestos is known to be present it can be managed. If asbestos is NOT known to be airborne, it can contaminate not only the area but anyone in that area. Increased or prolonged periods of exposure lead directly to increased cost in the short term, medium term and long.
▪ Asbestos Consultancy	Leak Monitoring	Real time alarm	Immediate awareness of asbestos leak which can then be managed. Reduction in potential contamination or exposure.	The earlier you know of a release, the lower the costs to manage. Reduced contamination is cheaper than widespread.

Potential User	Usage Case	Feature	H& S Benefits	Commercial Benefits
▪ Asbestos Removals Contractor ▪ Property Owner ▪ Facilities Management		Fibre level tracking	Identification of leaks, may not be asbestos but could become asbestos.	The ability to identify a leak before asbestos is present can prevent exposure and reduce contamination. If non asbestos fibre levels increase around an enclosure there is a very real possibility for asbestos release.
▪ Asbestos Consultancy ▪ Asbestos Removal Contractor	Transit Route Monitoring	Fibre level tracking	Real time risk identification	Reduced costs through minimising potential for prolonged contamination.
		Real Time Alarm	Identification of when the fibre levels started increasing enabling the review of process	Review of processes to reduce the potential for more frequent exposures leading to reduced costs.
	Survey Reassurance	Real Time alarm	Reassurance to the surveyor and property owners that fibres were not released during the survey.	Provision of reassurance without the need to have a fully trained analyst on site. If an analyst is required on site, this can double labour costs.
		Data review	If fibres were released, the fibre tracking provides the opportunity to identify the specific time fibre levels increased.	Investigation into fibre release is more efficient, reducing delays and potential impact on the business and the site.
▪ Asbestos Consultancy ▪ Asbestos Removals Contractor ▪ Property Owners ▪ Facilities Management ▪ Construction Companies	Non Asbestos Works Reassurance	Real time alarm	Reassurance the teams working are safe	Reduced employee concern leads to increased productivity. Real time alarm means efficient management. Efficient management leads to reduced costs and reduced time delays.
		Data review to identify which activity caused the release	Ability to manage potential further exposure	Efficient investigation through the utilisation of timestamped data. The specific activity can be reviewed to identify fibre release.

Potential User	Usage Case	Feature	H& S Benefits	Commercial Benefits
▪ Asbestos Consultancy ▪ Asbestos Removals Contractor ▪ Emergency Response Teams	Emergency Response	Real time alarm	Ability to manage the primary risks taking into account the potential secondary risk from asbestos.	When a consultancy is called to site to help manage a collapsed building for example, the sooner presence is confirmed the more easily managed the response can be. Efficiency in understanding of risk leads to reduced costs.
		Fibre level tracking	When reviewing attendance data the opportunity to identify varying sources of contamination based on fibre peaks and troughs + alarms.	The ability to identify individual sources of risk can help prioritise. Prioritisation adds efficiency to the situation through managing highest risk first reducing the potential for wider spread contamination.
▪ Asbestos Consultancy ▪ Facilities Management ▪ Property Owners ▪ Facilities Management	Managing known asbestos products	Real time alarm	The earlier the presence of airborne asbestos is known, the earlier the risk can be appropriately managed.	Widespread contamination and increased exposure can be prevented through real time alarms. Reduced contamination and exposure leads to reduced management and remediation costs. Longer term liabilities are reduced through reducing risk.
		Fibre level tracking	When a unit is situated in one location for a period of time, the fibre level tracking can enable the identification of trends in fibre levels and potential increased levels of asbestos. The more information you have on risk, the more efficiently and effectively it can be managed.	Early identification of potential releases can enable remediation, repair or removal prior to release. Preventing release is cheaper than remediation post release.

Potential User	Usage Case	Feature	H& S Benefits	Commercial Benefits
		Activity based risk management	As above, the more information held on risk the more effective management can be. If the specific activities that lead to increased risk are understood, activity in the area can be managed to reflect this.	Prioritisation of asbestos removal based on increased understanding of risk.
▪ Miners	Mining	Real time alarm	Real time awareness of asbestos risk once airborne.	Where an alarm is triggered, asbestos is present, if asbestos is known to be present it can be managed. If asbestos is NOT known to be airborne, it can contaminate not only the area but anyone in that area. Increased or prolonged periods of exposure lead directly to increased cost in the short term, medium term and long.
		Fibre Tracking	Awareness of fibres being released as it happens.	Even prior to the Alert unit alarming, fibre levels can rise which may not be expected. The rise in fibre level may provide an early sign that asbestos may be being released and becoming airborne.
		Timestamped Data	The ability to review data to identify specific peaks and troughs in fibre levels.	Post event timestamped data can be reviewed to increase understanding of the event and to help manage risk moving forward.

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