Makita®

Engineered to Perform

Solutions | Dust

Delivering Safety

SOLUTIONS

SERVICE, TRAINING, VIBRATION, NOISE AND DUST

Contents

Makita are committed to developing new initiatives and services that meet your requirements and improve your productivity.
We challenge ourselves to new initiatives which deliver the high standards you expect with the Makita brand whilst reducing the risk you are exposed to.

Makita offer a wide range of products with integrated dust collection systems, and also compact battery operated dust collection systems that enable you to work safely without losing the freedom that cordless products offer.

Why is construction dust such an issue?	**03**
What is the legal position?	**04**
What can I do to legally comply and protect my health?	**05**
What can Makita offer?	**08**
Our technologies	**10**
Summary	**11**

The maximum exposure level of silica dust allowed in a day compared to a penny

Q | Why is construction dust such an issue?

The HSE estimate that there are over 500 deaths per year due to dust inhalation within the construction industry. Silicosis, caused by Silica dust is the second biggest killer to asbestosis in the industry. Construction dust is a general term used to describe various dusts created around a site when processing various materials.

Silica Dust - Created when working on the following: **Concrete**, **Clays**, **Masonry**, **Mortar** and **Sandstone**.

Crystalline Silica (Quartz) is the second most common mineral in the world. The fine dust, known as Respirable Crystalline Silica, created when processing these materials can travel deep into the lungs once inhaled.

Non-silica dust - **Gypsum**, **Limestone** and **Marble**

Wood Dusts – Created when working on materials such as **Hard Woods** (Ash, Beech, Chestnut, Elm, Mahogany, Maple, Oak and Teak), **Soft Woods** (Cedar, Fir, Pine and Yew), **MDF** (Medium Density Fibreboard) and **Engineered Board** (Plywood and Chipboard).

The processing of these materials is often undertaken with the use of a power tool. The levels of dust created vary depending on the process and tool being used. These processes include: **Breaking**, **Cutting**, **Chasing**, **Drilling**, **Grinding** and **Sanding**.

The materials processed release varying levels of harmful particles into the atmosphere.

Health

Inhalable dust: This is airborne particles that are breathed into the airways and deposited in the respiratory tract. These particles are usually cleared by mucus.

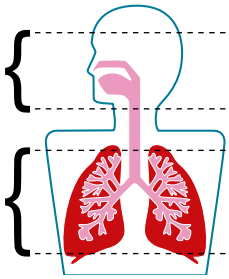
Respirable dust: This refers to the finer particles that penetrate deep in to the lungs. Respirable Crystalline Silica (RCS) can cause scar tissue of the lung which in turn leads to silicosis.

The health risks

Illnesses and diseases resulting from the effects of dust.

Inhalable dust
Wood dust

Respirable dust
Welding fumes
Silica dust
Asbestos



Inhalable dust Diseases
Acne
Dermatitis
Skin Cancer
Asthma

Respirable dust Diseases
Asbestosis
Cancer
Silicosis
COPD

Work related respiratory diseases in construction

Chronic Obstructive Pulmonary Disease (COPD): This is characterised by airflow obstruction that is not fully reversible. COPD refers to a group of Lung diseases such as Bronchitis and Emphysema. This condition is caused by exposure to RCS. This disease can be slow to develop and can be disabling. Exposure to RSC is a leading cause of death within the construction industry.

Occupational Asthma: Occupational Asthma is an allergic reaction that occurs in some people when they are exposed to substances in the workplace, e.g. wood dust.

Silicosis: Silicosis is an irreversible lung disease which in the case of Acute Silicosis or Accelerate Silicosis can occur over a short period of time. Fine particles of respirable crystalline silica (RCS) cause damage and inflammation in the lungs. Silicosis can be extremely disabling and is a leading cause of death within the construction industry.

Q | What is the legal position?

There are regulations in place which outline how to manage and control hazardous dust emissions within the working area. These are known as COSHH regulations 2002 (Control Of Substances Hazardous to Health).

A detailed document with the maximum Workplace Exposure Limits (WEL) for dust is available. These are UK occupational exposure limits and are in place to protect the health of workers.

WEL represents the concentration of hazardous substances contained within the air averaged over a specific time period. More information can be found within COSHH or document EH40 found on the HSE website.

There are two parts to these WEL requirements:

Dust Type	Legal Limit Set (COSHH)
1 Inhalable Dusts	10 mg/m3
2 Respirable Dusts	4 mg/m3

The individual construction dust exposure limits for specific products are contained in the HSE guidance EH40. Outlined below is an example of those limits to common products. The exposure limits detailed are legally binding and are the maximum levels you should be exposed to in a working 8 hour day.

Product	Workplace Exposure Limit (WEL)	Health hazard
Respirable Crystalline Silica	0.1 mg/m3	(Invisible to the naked eye) **Capable of causing:** Scar tissue of the lung, silicosis, asthma, asbestosis, cancer, COPD
Soft Wood Dust	5 mg/m3	**Capable of causing:** Occupational asthma, acne, dermatitis, skin cancer
Hardwood Dusts	5 mg/m3	**Capable of causing:** Occupational asthma, acne, dermatitis, cancer
Gypsum Inhalable Respirable	 10 mg/m3 4 mg/m3	**Capable of irritating:** Acne, dermatitis, COPD and asthma.

Maintenance of LEV (Local Exhaust Ventilation)

Under COSHH regulations (Regulation 9) all plant and LEV that has been provided to protect employees needs to be maintained and serviced by a competent organisation every 14 months.

Through Examination and Test (TExT)

TExT is an inspection of the LEV. The objective of the inspection is to ensure that the system is working correctly as designed and to identify any defects that may reduce its effectiveness e.g. Split hoses and to have such defects rectified. If you own an LEV system you should keep suitable records to show the system has been inspected and tested.

M Class dust extraction is now the minimum legal requirement when working with Crystalline Silica content materials.

Q What can I do to legally comply and protect my health? (Part 1)

The control measures are quite simple. The HSE guidance on control measures is as follows:

Eliminate the risk

- Can the materials be brought to the project pre-cut?
- Are there alternatives to the process?
- Can alternative materials be used?

Control the risk

- The use of correct extraction systems (Local Exhaust Ventilation - LEV's) to control the dusts created throughout the process.
- Allocated cutting areas.
- Reduce the time of exposure.
- The HSE have produced additional documentation to advise you the user how best to manage this risk on site.

This is contained in CIS69 (Construction Information Sheet 69).
This refers to on-tool extraction.

Review the effectiveness of the controls

- Regular checks on the system to ensure its functionality.
    - Extraction Unit.
    - Connector.
    - Capture Device.
    - Accessory.
- Ensure correct connectors are used to ensure maximum collection of dust.
- All extraction units require a TExT (Thorough Examination and Test) check every 14 months.

15kg

A twin wheeled wall chaser can produce over 15kg of airborne dust per hour.

The maximum level of silica dust inhaled in a day should not exceed (0.1 mg/m^3).

Machine without dust suppression system.

Machine with dust suppression system.

Q What can I do to legally comply and protect my health? (Part 2)

There are many different types of dusts around the working environment and the way in which these dusts are controlled are different. National and International standards govern the specific technical requirements for control measures and extraction units to be used when these materials are being processed. The international standard EN60335-2-69 clearly defines the three classifications for extraction units, this being L, M and H.

Capturing dust at source is the most effective method of control. There are four main sections of an effective system:

1) Accessories

Check that the accessories being used allow effective removal of dust through to the collection device.

2) Capture Device

An important part of the system. Ensure that the device is suitable for the machine and the accessory when fitted to any system. There are many products now available from Makita which by way of design incorporate the capture and containment process. These are termed as integrated systems.

3) Power Tool

Many of the products available from Makita are now designed with the extraction point on the machine itself.

4) A: Extraction Unit/Vacuum (LEV)

Following a review period the HSE recommends that to efficiently control the capture of dusts the following classification of extraction units should be used – “M” (medium hazard) or “H” (high hazard).

B: Water Suppression System

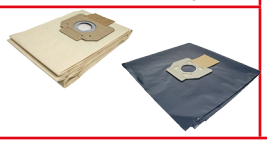
Water suppression is an alternative solution in effective dust control when using non-electrical cutting tools within construction industry applications.

Quick view classifications

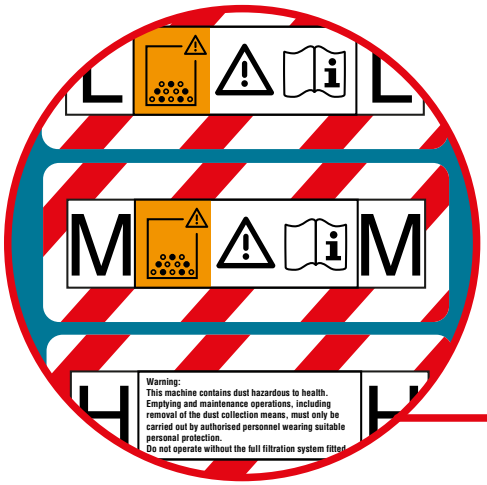
The classification (L/M/H) does not apply to just the filter within the dust extractor, it is related to the contaminant and dust.

Dust Class	Suitability for hazardous dust with limit values for occupational exposure	Degree of penetration (Leakage) %	Material Examples
L (Light Hazard)	> 1	< 1%	Plaster Gypsum
M (Medium Hazard)	≥ 0.1	< 0.1%	Wood Dust, Mortar, Concrete containing quartz Silica.
H (High Hazard)	≥ 0.005	< 0.005%	

Additional consideration needs to be given when using extraction units, and that is to ensure the use of a necessary collection bag. Material specific bags will contain the collected dusts created throughout the process and allow safe disposal of the waste material.

Type of materials processed	Accessory	Dust extractor
Wood Dust	Paper Bag Cloth Bag	
Mineral Dust	Paper Bag Plastic Bag 	

The labels are clearly identifiable on the extraction unit and you cannot retrofit/ test for compliance.



Q | What can Makita offer?

MACHINE	ATTACHMENT	CUFF
ROTARY HAMMERS		
BHR262/T	193472-7	22mm
DHR162	193472-7	22mm
DHR164	193472-7	22mm
DHR165	193472-7	22mm
DHR202	193472-7	22mm
DHR263	193472-7	22mm
DHR264	193472-7	22mm
HR2470	193472-7	22mm
HR2601	193472-7	22mm
HR2610	193472-7	22mm
HR2611	193472-7	22mm
HR2811	193472-7	22mm
HR2300	195180-6	22mm
HR2300	195180-6	22mm
HR2600	195180-6	22mm
HR2601	195180-6	22mm
HR2630	195180-6	22mm
HR2610T	195180-6	22mm
HR2611F/FT	195180-6	22mm
HR4001C	195866-2	22mm
HR4011C	195866-2	22mm
HR4511C	195866-2	22mm
HR5211C	195866-2	22mm
HR4013C	196536-6	22mm
HR5212C	196861-5	22mm
DEMOLITION HAMMERS		
HM1101C/11C	196571-4	28mm direct to hose
HM0870C/71C	196571-4	28mm direct to hose
HM1203C/13C	196571-4	28mm direct to hose
HM1214C	196571-4	28mm direct to hose
HM1304/B	*197168-2* or **197148-8	28mm direct to hose
HM1317C/CB	*197168-2* or **197148-8	28mm direct to hose
HM1812	*197168-2* or **197148-8	28mm direct to hose
HM1810	*197168-2* or **197148-8	28mm direct to hose
**197168-2 with 28mm hose **197148-8 without hose*		
DRYWALL CUTTERS		
3706	193449-2	22mm
DCO180	193449-2	22mm
ROUTERS		
When used with plunge base		
RP0910	NO ATTACHMENT REQUIRED	22mm
RP1110C	NO ATTACHMENT REQUIRED	22mm
RP1801X	194934-8	38mm
RP2301FCX	194934-8	38mm
RP0900	194733-8	38mm
RT0700C	195559-1	38mm
*RT0700C	194733-8	38mm
JIGSAWS		
DJV180/140	417853-4 + 192349-3	22mm
DJV182/142	126331-0 + 195546-0	24mm
DJV181/141	126331-1 + 195546-0	24mm
4329	192349-3	22mm
JV0600	192349-3	22mm
4350CT/FCT	417853-4 + 192349-3	22mm
4351FCT	417853-5 + 192349-3	22mm
DISC CUTTERS		
4112HS	192613-2	38mm
4114S	192613-2	38mm
4105KB	192613-2	38mm
WALL CHASERS		
SG1251J	NO ATTACHMENT REQUIRED	38mm
CONCRETE PLANERS		
PC5000C	NO ATTACHMENT REQUIRED	38mm
PC5001C	NO ATTACHMENT REQUIRED	38mm
MULTI TOOLS		
DTM50/40	195965-0	22mm
DTM51	196765-1	22mm
TM3000C	196022-7	22mm
TM3010C	196550-2	22mm

COMES AS STANDARD EQUIPMENT WITH MACHINE

MACHINE	ATTACHMENT	CUFF
ANGLE GRINDERS		
Cup Type Diamond Wheel		
115/125mm	195239-9	38mm
180/230mm	195385-8	38mm
Enclosed Dust collecting guard		
125mm	196845-3	38mm
Dust collection wheel guard		
115/125mm	193794-5	38mm
180mm	194303-3	38mm
230mm	194044-1	38mm
PLANERS		
KP0810K/CK	NO ATTACHMENT REQUIRED	38mm
DKP180	451329-1	38mm
KP0800	451329-1	38mm
1911B	192082-7	38mm
1100	315879-8 + JPA122275	38mm
1806B	122397-8 + 181575-9	38mm
KP312	193733-5 + 181575-9	38mm
BISCUIT JOINTERS		
PJ7000	NO ATTACHMENT REQUIRED	22mm
DPJ180/140	NO ATTACHMENT REQUIRED	22mm
BELT SANDERS		
9401	NO ATTACHMENT REQUIRED	38mm
9403	NO ATTACHMENT REQUIRED	38mm
9903	NO ATTACHMENT REQUIRED	38mm
9920	NO ATTACHMENT REQUIRED	38mm
9911	NO ATTACHMENT REQUIRED	38mm
9032	122652-8	22mm
9031	NO ATTACHMENT REQUIRED	22mm
FINISHING SANDERS		
BO3710/11	NO ATTACHMENT REQUIRED	22mm
BO4555/56	NO ATTACHMENT REQUIRED	22mm
BO4900/V	NO ATTACHMENT REQUIRED	22mm
RANDOM ORBITAL SANDERS		
BO5030/31	NO ATTACHMENT REQUIRED	22mm
BO5041	NO ATTACHMENT REQUIRED	22mm
BO6030/40	NO ATTACHMENT REQUIRED	22mm
DBO180/140	NO ATTACHMENT REQUIRED	22mm
BO6050J	NO ATTACHMENT REQUIRED	22mm
CIRCULAR SAWS		
DHS630	194314-8	22mm
DSS611/610	419283-5	22mm
DSS501/500	194415-2	22mm
HS300D/01D	452237-9	22mm
DHS710/711	196520-1 + 195546-0	24mm
HS7100	453289-3 + 195546-0	24mm
DHS680	196961-1 + 195546-0	24mm
5704RK	192420-3	38mm
5703R	192420-3	38mm
5143R	192490-2	38mm
5008MG	450079-5	38mm
5103R	415426-7	38mm
5903R	415426-8	38mm
5604R	NO ATTACHMENT REQUIRED	38mm
5017RKB	NO ATTACHMENT REQUIRED	38mm
SP6000	195546-0	24mm
CA5000	195546-0	24mm
MITER SAWS AND TABLE SAWS		
DLS713	NO ATTACHMENT REQUIRED	38mm
LS0815FL	NO ATTACHMENT REQUIRED	38mm
DLS714	NO ATTACHMENT REQUIRED	38mm
LS0714/L	NO ATTACHMENT REQUIRED	38mm
LS1016L	NO ATTACHMENT REQUIRED	38mm
LS1018L	NO ATTACHMENT REQUIRED	38mm
LS1216L	NO ATTACHMENT REQUIRED	38mm
LS1040	NO ATTACHMENT REQUIRED	38mm
LF1000	NO ATTACHMENT REQUIRED	38mm
LH1040	NO ATTACHMENT REQUIRED	38mm
LH1200FL	NO ATTACHMENT REQUIRED	38mm
LB1200F	JM27000090	38mm
2704	419093-0	38mm
MLT100	JM27000090	38mm
2712	JM27000090	38mm

COMES AS STANDARD EQUIPMENT WITH MACHINE

M CLASS - 447M

M

Specifications

Tank Volume:	45 litres
Dry Capacity Container:	24 litres
Dry Capacity Bag:	20 litres
Wet Capacity:	20 litres
Input Wattage:	1,000W
Power Take Off:	
240V	2,000W
110V	1,750W
Air Volume:	3.1 m^3/min
Max Sealed Suction:	23.0kPa
Weight:	16.6kg

Comes with

Hose:	27mm
Tool Adaptor:	25-38mm

38 mm → 25 mm

Optional extra 192349-3 **22 mm**

M CLASS - VC3211M

M

Specifications

Tank volume (dry)	32 litres
Tank volume (wet)	27 litres
Input wattage	1,050W
Power take off	240V 1,900W
	110V 600W
Max airflow	3.5 m^3/min
Max Sealed Suction	22.0kPa
Weight	17.6kg

Comes with

Hose:	35mm
Cuff:	22mm
Cuff:	24mm
Cuff:	38mm

38 mm | 24 mm | 22 mm

M CLASS - VC2201MX1 / VC2211MX1

M

Specifications

Tank volume (Dust)	22L
Tank volume (Wet)	17L
input wattage	1,050W
Power take off (VC2211M only)	1,900W
Max sealed suction	22.0kPa
Max air flow	3.5m^3/min
Power supply cord	5.0m
Weight	16.3kg

Comes with

Hose:	28mm
Hose:	37mm
Cuff:	22mm
Cuff:	24mm
Cuff:	38mm

38 mm | 24 mm | 22 mm

M CLASS - VC3012M

M

Specifications

Tank volume	30 litres
Disposal bag volume	23.5 litres
Wet capacity	19 litres
Input wattage	110V: 1,000W
	240V: 1200W
Power take off	240V: 1,800W
Max air flow	110V: 3.2m^3/min
	240V: 3.7m^3/min
Max sealed suction	110V:23.0kPa
	240V:25.0kPa
Net weight	10kg

Comes with

Hose:	32mm
Cuff:	25-38mm
Cuff:	22mm

22 mm

38 mm → 25 mm

L CLASS - VC3011L

L

Specifications

Tank volume	30L
Disposal bag volume	28L
Wet capacity	23L
Input wattage	1,000W
Power take off	240v: 2000W
Max air flow	3.6 m^3/min
Max sealed suction	21.0kPa
Sound pressure level	72 dB(A)
Weight	11kg

Comes with

Tool Adaptor:	25-38mm

38 mm → 25 mm

Optional extra 192349-3 **22 mm**

L CLASS - VC1310L

L

Specifications

Tank volume	13 litres
Dry capacity container	13 litres
Wet capacity	7 litres
Input wattage	1,050W
Power take off	240V 2,400W
	110V 950W
Air volume	2.0 m^3/min
Max sealed suction	22.0kPa
Weight	9.6kg

Comes with

Hose:	28mm
Cuff:	22mm
Cuff:	24mm
Cuff:	38mm

38 mm | 24 mm | 22 mm

L CLASS- 447L / 446L

L

Specifications

Tank volume	447: 20L
	446: 27L
Dry capacity container	447: 24L
	446: 18L
Dry capacity bag	447: 20L
	446: 11L
Wet capacity	447: 20L
	446: 9L
Input wattage	1,000W
Power take off	240V: 2,000W
	110V: 1,750W
Air volume	3.1 m^3/min
Max sealed suction	23.0kPa
Weight	447:15.9kg / 446:9.9kg

Comes with

Hose:	27mm
Hose:	37mm
Tool Adaptor:	25-38mm

38 mm → 25 mm

Optional extra 192349-3 **22 mm**

L CLASS- VC2012L

L

Specifications

Tank volume	20L
Disposal bag volume	19L
Wet capacity	12L
Power take off	240v: 2000W
Input wattage	1000W
Max air flow	3.6 m^3/min
Max sealed suction	21.0kPa
Sound pressure level	72 dB(A)
Weight	8kg

Comes with

Hose:	32mm
Tool Adaptor:	25-38mm

38 mm → 25 mm

Optional extra 192349-3 **22 mm**

L CLASS- VC2512L

L

Specifications

Tank volume	25L
Disposal bag volume	23L
Wet capacity	18L
Input wattage	1000W
Max air flow	3.6 m^3/min
Max sealed suction	21.0kPa
Sound pressure level	72 dB(A)
Weight	7kg

Comes with

Tool Adaptor:	25-38mm

38 mm → 25 mm

Optional extra 192349-3 **22 mm**

L CLASS- DVC861L

L

Specifications

Tank volume	8 litres
Power unit	AC/DC
Battery voltage	36V (2x18V)
Input wattage	1,050W
Power cord	5.0m
Weight with battery	9.9 kg
Battery run time	30-65 mins x2 BL1850
Suction power (DC)	70 – 25W
Suction power on (AC)	320W
Max sealed suction (DC)	9 kPa
Max sealed suction (AC)	24 kPa
Max air flow (DC)	2.1 m^3/min
Max air flow (AC)	3.6 m^3/min

Comes with

Hose:	28mm
Hose:	38mm
Cuff:	22mm
Cuff:	24mm
Cuff:	38mm

38 mm | 24 mm | 22 mm

Our Technologies

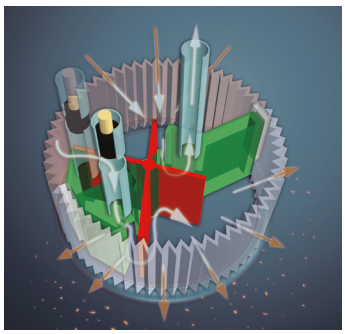
Makita products are designed and engineered to the highest standards to ensure that operatives can perform efficiently and safely whilst meeting industry legislation.

Push and clean

VC3012M VC3011L VC2012L VC2512L models
Fast and simple semi-automatic cleaning system which cleans the filter in a similar way to Xtreme Clean.

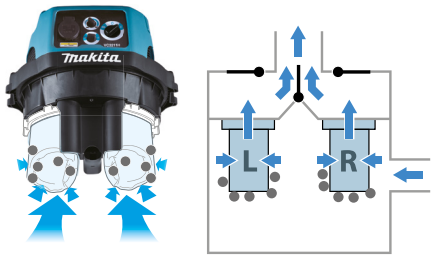
1. Place your hand over the suction pipe creating a vacuum.
2. Activate the cleaning process by pressing the button.
3. Air is sucked in to the vacuum and forced through the filter, clearing the dust away into the bottom of the tank.

Automatic cleaning

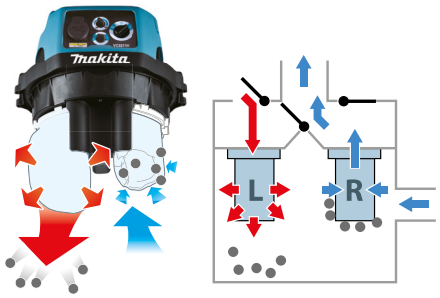


447L, 447M, VC2201MX1, VC2211MX1 and VC3211M models
Automatic filter cleaning system uses valves to alter the air route through the filter to clean each half of the filter when the machine is switched on and during use.

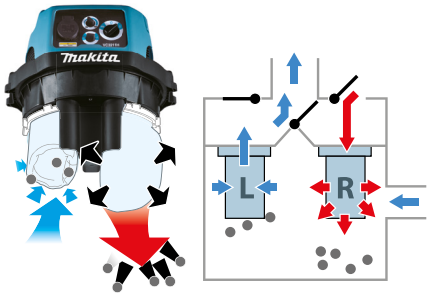
Once one side of the filter becomes clogged the valves switch, drawing contaminated air in through the opposite side of the filter which in turn forces clean air through the clogged part of the filter clearing the dust and dirt which drops into the bottom of the tank.



1) The machine starts vacuum operation using two filter units, and each Prefilter shrinks by itself to compress Damper, and fits closely over Damper and Powder filter.



2) In about 10 seconds, the air flow control valves built in make the vacuum air-flow reverse, then the air blast into L filter unit will expand compressed Damper to shake off dust while the vacuum operation continues using the other filter unit.



3) Then, the other filter unit is automatically cleaned through the same mechanism as mentioned in 2) while the machine continues vacuum operation.

4) Now the machine starts vacuum operation using two filter units.

Summary

Dust is a general term used to describe various dusts created around a workplace from numerous processes and materials. Some example materials creating dust come from silica, wood (hard & soft), MDF (Medium Density Fibre) and engineered wood. The processes undertaken include drilling, grinding, breaking and sanding. The HSE estimate there are over 500 deaths per year in the construction industry attributable to dust inhalation.

Work related respiratory diseases include COPD, occupational asthma and silicosis. The inhalation of dust can be classed into two types, inhalable dust or respirable dust with differing health effects.

The two types of dust have legal limits of exposure within the COSHH regulations. These are listed in the EH40 document, which is available on the HSE website and are in place to protect the employee.

The maintenance of LEV is a requirement under COSHH regulations. To comply with this a TExT is put into place and carried out every 14 months by a competent person.

For an employer to comply with legislation, there are simple control measures which can be put in place. Makita can assist you with these measures. We have the extraction units available in the 3 classes, L, M, or H. We have a wide range of accessories, dust suppression, and capture devices for your Makita tools. We also have a selection of filter bags to meet your needs.

The minimum legal limit for on-tool dust extraction is M class when working with Silica.

Our extensive range of tools & accessories provide you with many options of the correct tool for the application.

REMEMBER, CONSTRUCTION DUST KILLS, DON'T BE A STATISTIC.

Training that counts

Makita offer a wide range of training packages for both managers and users alike. These packages are tailored to suit your individual requirements and sector of business.

We cover a wide range of topics and many of the courses are accredited by the CITB or City & Guilds boards.

SOLUTIONS
SERVICE, TRAINING, VIBRATION, NOISE AND DUST

The Makita Solutions package is a comprehensive group of products to get the most from your Makita tools. "Solutions" has been designed to help you keep your tools in prime condition, help you understand the risks of using power tools and offer you training to help you work effectively, efficiently and most of all safely.

We deliver where you are

- On-site demonstrations
- On-site tool box talks
- "BE SAFE" awareness courses for colleges and apprentice training organisations
- Hire Company
- Shows

Additional reading:

Construction dust
www.epta.eu

Controlling construction dust with on tool extraction
www.hse.gov.uk/pubns/cis36.pdf

EH40/2005 Workplace exposure limits
www.hse.gov.uk/pubns/cis69.pdf

Toxic woods
www.hse.gov.uk/pubns/books/eh40.htm

COSHH
www.hse.gov.uk/pubns/coshh

Makita UK
Michigan Drive, Tongwell, Milton Keynes, Buckinghamshire MK15 8JD
T: 01908 211678 F: 01908 211400 **www.makitauk.com**

EPTA Makita Corporation is a member of The European Power Tool Association.

98N336 1216