TOOLBOX TALK NO.21

Abrasive Wheels

Abrasive wheel machines of all types have the potential to cause severe injury if they are not used with care. Anyone who uses an abrasive wheel machine, must be trained and competent to do so. The potential for danger arises not so much from the machine itself but from the grinding wheel or cutting-off disc used with the machine. Many accidents are caused by the abrasive wheel being rotated faster than its design speed, which results in it breaking up/bursting at high speed.

It is essential to check the compatibility of the abrasive wheel or cutting-off disc with the machine to which it is fitted. The fitting must only be carried out by someone who is trained and competent to do so.

It is essential that

- ✓ The right abrasive wheel for the job is chosen
- ✓ It is correctly mounted by a competent person on a compatible machine
- ✓ It is run at the correct speed and the guards are fitted
- ✓ Eye protection is used and selected at an appropriate grade, which should match the speed of the tool.

General precautions

- The speed of the machine must not exceed the maximum permissible speed of the wheel. Many accidents are caused by the wheel over-speeding.
- Don't mount an abrasive wheel unless authorised in writing and trained to do so.
- Don't exert heavy pressure on the wheel.
- Never use the side of the wheel unless it is designed for it.
- Keep your fingers away from the cutting edge of the wheel.
- Hearing and eye protection MUST always be worn. Ensure that the eye protection is the correct type – normal safety glasses will NOT stop high speed fragments.
- Where possible use wet cutting to reduce dust.

Using portable abrasive wheels

- Only use reinforced discs on hand-held machines.
- Adjust the guard to expose the minimum amount of the blade required for operation.
- Be aware of other workers in your area, don't put them at risk by your actions.
- Depending upon what is being cut, it is likely that appropriate respiratory protective equipment (RPE) will be needed.
- Be aware of noise and vibration hazards.
- Adjust the tool rest as close as possible to the face of the wheel.
- Make sure that the materials being cut are stable and will not move during cutting or snap as cutting nears completion.
- Run a replacement wheel for a full minute after fitting before attempting to use it. Stand clear during the test.
- Stop the wheel when not in use.
- Ensure that a suitable dust extraction system is used when cutting in doors.
- Unplug electrical tools when not in use, turn off petrol tools when not in use

SAFETY AS STANDARD

PROTECT YOUR EYES FROM FLYING FRAGMENTS.

Questions: What type of discs should be fitted to portable machines?
Why should the speed rating of a wheel be checked before use?

Maintenance

In addition to checks immediately before and after each use, every machine should be regularly and frequently serviced by a competent person in accordance with the manufacturer's instructions. A record of this maintenance should be kept.
It is good practice to record the type and serial number of all abrasive wheel machines in a maintenance log, together with the date each machine is due for service. All records should be kept up to date.

All defects in work equipment are to be reported immediately.

Health considerations:

Protection of eyes: During cutting or grinding processes, a stream of dust or abrasive particles and hot sparks are thrown off. This can cause serious injury to the eyes. Eye protection should be provided in accordance with the PPE regulations – googles, a face shield or visor (BS EN 166.1.A high energy impact = 190m/s or BS EN 166.1.B medium energy impact = 120m/s, depending on the speed of the tool). BS EN166.1.F eye protection is NOT an acceptable standard.

Respiratory Protection: Depending on what material is being cut, it is possible that the user of an abrasive wheel may be vulnerable to inhaling hazardous dust. Assess the nature of the dust and provide suitable respiratory protective equipment. If in doubt, ask your supervisors. Also refer to the RAMS.

Vibration: The very nature of carrying out grinding or cutting work using abrasive wheels is likely to subject the person doing the job to a degree of hand-arm vibration. Assess the risk and put preventative and protective measures in place to ensure that the health of the operative who carries out this type of work is not adversely affected. As your supervisor how long (max) you should use the tools daily. Also refer to the RAMS.

Noise: Grinding and cutting operations using abrasive wheel machines will result in an increased level of noise, both from the machine itself and from the contact between the cutting disc or grinding wheel and the material being worked on. Personal hearing protection must be worn, depending on the level of noise and the proximity of the other people, it may be necessary for them to also wear hearing protection. If in doubt, ask your supervisor. Also refer to the RAMS.

Other safety considerations:

- ✓ The machine must have an efficient starting and stopping device that is easy to get to and can be readily operated
- ✓ The floor area of the workplace must be kept in good condition, free of loose material and should not be slippery
- ✓ Abrasive wheels should be properly stored, flat and preferably in their boxes, and in accordance with the manufacturer's guidance.
- ✓ Ensure any electrical leads, plugs and fittings are free from damage and the tool has an in date PA Test (within the last 3 months)