# Unit 3 Various working materials

## Task 04

Announcer: Listen to Lilly's and David's supervisor Mr Kaup talking about working materials.

Mr Kaup: Ok, today we're going to speak about working materials, their characteristics and the right choice to make between them. Just for repetition, you have already learned about the three groups of working materials, haven't you?

Lilly: Yes, there are metals, non-metals and composite materials.

Mr Kaup: Right, and do you know how metals are sub-divided?

Lilly: Yes, I do … They are sub-divided into ferrous metals, to which steel and materials for casting belong, and non-ferrous metals, such as light metals and heavy metals. Light metals include elements such as aluminium, magnesium and titanium, while heavy metals are zinc, lead and copper. It is also important to know that lead is quite toxic.

Mr Kaup: Excellent, that's right. Miro, could you tell me something about non-metals?

Miro: Certainly. Non-metals are also sub-divided into artificial materials and natural materials. Artificial materials are further divided into 3 sub-classes: the first are synthetic materials such as thermoplastic, duroplastic and elastomer materials. Then the second artificial material sub-class are glass materials and lastly, the third are ceramic materials. Natural materials on the other hand, are made up of mineral, plant or animal materials.

Mr Kaup: Great! You're right, of course … and I'm sure you also know the third group … the composite materials, which are sub-divided into sintered materials, hard metals and reinforced synthetic materials.

Miro: Yes, but as far as I know, there are also some process materials, used when doing the job, which are quite important, too, aren't there?

Mr Kaup: Yes, you're absolutely right: Process materials are really important!

Just to name the most important ones: combustibles, fuels, lubricants, coolants, abrasive and polishing materials, hardening agents, cleaning agents and soldering agents.

As I mentioned before, these are just the most important ones, there are many more. Now, let's get to the point: The choice of the right working material is based on different characteristics and considerations, such as: physical, chemical, mechanical, environmental and also economic considerations.