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2850

Level 3 Diploma in Engineering





Units supported at Level 3

There are 17 units supported on SmartScreen

Unit 301 Engineering health and safety

Unit 302 Engineering principles

Unit 303 Principles of welding

Unit 304 Principles of fabrication

Unit 305 Principles of fabrication and welding

Unit 306 Principles of engineering maintenance, installation and commissioning

Unit 307 Principles of mechanical manufacturing engineering

Unit 308 Principles of electrical and electronic engineering

Unit 311 MIG welding of materials

Unit 320 Maintenance of hydraulic systems

Unit 321 Maintenance of pneumatic systems

Unit 324 Machine materials by milling

Unit 325 Machine materials by grinding

Unit 326 CNC machining of materials

Unit 327 Detailed fitting of materials

Unit 328 Maintenance of electrical equipment and systems

Unit 329 Produce drawings using CAD





Support for the units includes

- Sample schemes of work
- Sample lesson plans
- Handouts
- Worksheets
- Interactive activities
- Individual learning plans
- PowerPoint presentations
- Evaluation tests



Example: Handout

Unit 303: Principles of welding

Handout 12: Outline the reason for cracking within welds

Outline the effects of dilution on fully fused joints in dissimilar metals

Dilution can be defined as **the mixing together of the parent metal with the filler metal**. When any fusion weld is made there will always be some dilution of the weld deposit by the parent metal. The exception to this is an **autogenous** weld.

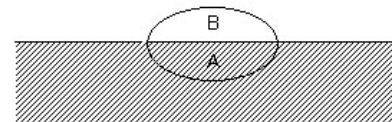
When welding low-carbon steel with electrodes/filler wires made from low-carbon steel dilution is not normally a factor worthy of consideration. However, where alloy steels or dissimilar metals (eg low-carbon steel to stainless steel) are being welded, dilution needs to be considered to avoid problems, such as **cracking** or **local hard spots**. To this end the **alloy content** of the electrode/filler wire is selected to offset the effects of dilution.

Dilution of weld deposits has an affect on the following factors:

- composition of weld deposit
- parent metal properties
- structural properties of joint
- mechanical properties of joint
- corrosion resistant properties of joint

Determining the amount of dilution in a weld deposit

Consider the weld in Fig. 1



Example: Worksheet

Unit 325: Machining materials by grinding Worksheet 1: Wheel construction and cutting action

Action

1. A grinding wheel has thousands of tiny _____ edges, in the form of abrasive _____ which removes tiny chips of material from the workpiece with the _____ layer of these abrasives.
2. When a grain becomes worn, the increased _____ resistance pulls it away from the _____ surface of the wheel. This exposes new _____ grains which continue to cut (grinding action) until they in turn become _____.
3. Hence all abrasives products do their work by _____ themselves away to maintain their _____ action.
4. A weaker bond, that part of the wheel which _____ the grains in place, causes _____ wear than a strong bond, which reduces the wear but is more likely to cause the wheel to be _____ (loaded) or _____ (glazed).

Construction

1. The wheel is usually defined as a wheel consisting of abrasive particles _____ together with various materials, the _____ main types of bonding agents organic and inorganic.
2. Bonds organic, _____, rubber and shellac, are cure at _____ temperature rather than fired. These wheels are _____ and shock-resistant, and are not suited for _____ grinding.



Example: Activity

unit_301_health and safety_fill_in_the_blanks

Question 1 of 20 Point Value: 10

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The lifting operations and equipment regulations are referred to as _____.

Score so far: 0 points out of 0

SUBMIT





Additional support

- Tutor forum
- Recommended books and websites
- Glossary and FAQs

Coming soon!

- Sample questions!





**For more information please
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