

GCE Design and Technology Resistant Materials (A2)

Exemplar Commentary 2

Title: Salt Grinder

Unit: 6RM01

Product investigation	Salt grinder
A	Performance analysis is a description of the product, not a comparison against specification points. There are some statements relating to user requirements and performance requirements which can be credited, but these are limited. The comparison with a similar product is superficial and general and does not focus well on specification points. (Mark Range 0-3)
B	Appropriate information on identified materials is presented, but there is no justification for their use in the product and they are not analysed in terms of advantages and disadvantages. Alternative materials are specified, but the suggestion for acrylic is 'other thermoplastics' which is not specific enough to be valid. Copper is suggested as an alternative for the grinding mechanism, but as a 'soft' metal it is doubtful whether this would be appropriate. Environmental impact is covered but limited to statements on recycling. Page 9 has information on the environmental impact of producing stainless steel and this can be credited here (Mark Range 4-6)
C	This brief section identifies an appropriate manufacturing process, injection moulding, for the body of the product and offers blow moulding as an alternative, which is not correct. Die casting is appropriately identified. No justification for use of the processes is given however and advantages and disadvantages are limited to two very brief generic statements on page 8. The information on the production of stainless steel is irrelevant, as is the statement on the environmental impact of producing stainless steel. A single statement pointing out that gases are released during injection moulding is made, but there is no information regarding how this might affect the environment. (Mark Range 0-3)
D	General information regarding quality control is offered and only very limited checks relating to the product are suggested. Information relating to quality assurance is a brief description and not a system focused on the product. Two standards are identified, but there is no information to say how they affect the manufacture of the product. The 'closed loop' flow chart is irrelevant, illustrating manufacturing processes rather than defining quality control checks. (Mark Range 0-3)
Design & development	
E	The student has produced a range of creative, realistic and workable ideas that are well annotated with technical information. Interesting design possibilities are developed, but the student develops a much more 'straightforward' final design proposal. Ideas are evaluated against specification points implicitly through formative annotation and a formalised evaluation on page 16. Development illustrates change and refinement in the design proposal and modelling is carried out using resistant materials and 3D CAD. The final design proposal is evaluated against points of specification. This is a strong section, but a little confusing in 'development' where some work appears not to relate to the final design. (Mark Range 13-18)

F	<p>Communication skills are good, displaying some accuracy and precision in their use. Annotation provides good technical information and a working drawing goes some way to enabling a third party to manufacture the product. A detailed cutting list would have been of help. (Mark Range 9-12)</p>
Product manufacture	
G	<p>A detailed plan for production is presented which contains a sequence of events in the correct order, quality control checks and safety consideration. A Gantt chart is shown, but this does not indicate any units of real time. (Mark Range 4-6)</p>
H	<p>The student has produced a completed and fully functioning product that demonstrates high level skills. No justification for the selection of materials is offered, so maximum marks cannot be achieved. (Mark Range 13-18)</p>
I	<p>Testing is simplistic and superficial and not carried out against any set manufacturing criteria. Some third party testing is used, but this is also simplistic. (Mark Range 1-3)</p>