

**Specification of Competency Standards**  
**for the Manufacturing Technology Industry**  
**Unit of Competency**

Functional Area - Product Manufacturing

Title	Carry out new plastic materials and composite forming
Code	106526L4
Range	This unit of competency is applicable to the production department of the plastic industry corporation. Practitioners should be familiar with the characteristics of new plastic materials and composite and capable to apply new plastic materials and composite to carry out relevant forming
Level	4
Credit	6 (For Reference Only)
Competency	<p>Performance Requirements</p> <p>1. Understand relevant knowledge of new plastic materials and composite forming</p> <ul style="list-style-type: none"> <li>• Understand the characteristics applications and limitations of all kinds of new plastic materials and composite</li> <li>• Understand the common defect causes of the techniques and technologies of new plastic materials and composite forming, such as colour difference, stranded gas , injection lines, weld lines, surface peeling, anti-stress white / stress cracking, isosbestic point near sprue, and the effects of the record grooves</li> <li>• Understand the factors affect the techniques and technologies of new plastic materials and composite forming, such as materials selection, pre-processing handling of plastics, maintenance of machinery and inspection, post-processing handling of plastics injection parts and packaging, structures and maintenance of tools, using auxiliary equipment and environmental control</li> <li>• Understand all principles, final effect and applications of the techniques and technologies of new plastic materials and composite forming</li> <li>• Understand the parameter setting methods of new plastic materials and composite forming and master the rapid adjustment and control skills with the actual materials, tooling and mechanical conditions</li> <li>• Understand the meaning of the parameters setting of new plastic materials and composite forming, such as mould locking force, ejection force, injection pressure retaining time and filling time</li> <li>• Understand the types, structures, size, selection conditions, application methods, and safety guidelines of all plastic forming machines</li> <li>• Understand the types, materials, specifications and selection conditions of all kinds of plastic tooling</li> <li>• Understand all kinds of techniques and technologies of new plastic materials and composite forming, such as product design, specific mould design, forming techniques and technologies, mechanical requirements, application of materials, compatibility between materials, freezing time, application areas and restrictions</li> <li>• Understand the processing machinery maintenance and troubleshooting methods of other plastic machines</li> <li>• Recognise all kinds of new plastic materials, such as engineering plastics, thermoplastic plastics, thermoplastic elastomers, biodegradable plastics and recycled plastics</li> <li>• Understand all kinds of composite materials, such as glass fibers, carbon fibers, asbestos fibers, metal wires, and hard fine</li> <li>• Recognise the new plastic materials and composite forming technology</li> <li>• Understand integration requirements and restriction of all kinds of new plastic materials and composite</li> </ul>

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	<ul style="list-style-type: none"> <li>• Understand the testing methods of the characteristics of all kinds of new plastic materials and composite materials (such as physical performance, chemical performance and mechanical performance)</li> </ul> <p>2. Apply new plastic materials and composite forming technology in production</p> <ul style="list-style-type: none"> <li>• Analyse new plastic materials and composite</li> <li>• According to production requirements and resources within the corporation, select the appropriate new plastic materials and composite and carry out forming</li> <li>• Examine the production effectiveness of all kinds of techniques and technologies of plastic forming</li> <li>• In accordance with the shape and the final effects of plastic products, select the appropriate techniques and technologies of forming and apply it to the existing production lines</li> <li>• In accordance with engineering design, select the appropriate machinery, tools and mechanical parameters, so as to carry out new plastic materials and composite forming and obtain the expected final results</li> <li>• Carry out all kinds of plastic forming machines</li> <li>• Operate all kinds of plastic forming machines</li> <li>• Analyse the quality problems of the techniques and technologies of all kinds of plastic forming and carry out improvements</li> <li>• Record the relevant parameters of technologies and techniques of injection and production records</li> <li>• Determine and manage the performance and life of machinery and tooling, preventively maintain machinery and equipment and carry out troubleshooting</li> </ul> <p>3. Professional handling of new plastic materials and composite forming Follow safety guidelines and related codes of practice, in accordance with the requirements of product specifications and production efficiency, carry out new plastic materials and composite forming</p>
Assessment Criteria	<p>The integrated outcome requirements of this unit of competency are:</p> <ul style="list-style-type: none"> <li>• Capable to evaluate and apply the techniques and technologies of new plastic materials and composite in the production line forming</li> <li>• Capable to carry out technological analysis of new plastic materials and composite forming, review the applicable technologies and techniques, the required materials and restrictions, showing the problems of new plastic materials and composite forming technology and make improvements</li> </ul>
Remark	