

## Management software for pharmaceutical packaging' workflow

## Appendix 1

Business process	Business process key elements	Text recognition
Cooperation agreement	<ul><li>Requirement clarification</li><li>Workflow estimation</li></ul>	
Pre-production (prepress)	<ul> <li>Data management, file overlapping and trapping, form exposure</li> <li>Plate production using setters, computer plotters (aluminum, photopolymer, polyester plates), or other suitable equipment</li> <li>Image creation with standard internal marks and colored control marks</li> <li>Objective determination</li> <li>File preparation</li> <li>File printing</li> </ul>	
Raw materials	<ul> <li>Material receipt, identification, quarantine, storage, handling, sampling, testing, and approval or rejection</li> <li>Ensuring appropriate, controlled environment</li> </ul>	<ul> <li>Material thickness</li> <li>Torsional and shear stiffness</li> <li>Tensile strength</li> <li>Bursting strength</li> <li>Water penetration</li> <li>Vapor permeability</li> </ul>
UV, varnish	Work area conformity inspection	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>
Printing	<ul> <li>Color registering and aligning</li> <li>Color management and matching</li> <li>Color transitioning</li> <li>In-process checks</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>



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		Printing density
Stamping	<ul> <li>Holographic image, holographic hot stamping foil, holographic metallized paper and cardboard preparation</li> <li>Final resizing and positioning</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> <li>Stock management</li> </ul>
Cutting, creasing	<ul> <li>Machine set-up (sharp cutting, blunt creasing)</li> <li>Material folding</li> <li>Knife maintenance</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>
Material perforation	<ul> <li>Following acknowledged perforation rules for tight tolerances and registration to ensure smooth, burr-free edges</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>
Braille	<ul> <li>Diameter, character, point height, line spacing, size, positioning, perception verification</li> <li>Damage prevention</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> <li>Text conformity</li> </ul>
Stripping	<ul> <li>Waste stripping</li> <li>Waste disposal after pruning</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> <li>Waste control</li> </ul>
Folding	Defect rejection using scanners	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> </ul>



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		Equipment usage
Gluing	<ul> <li>Glue application before bending</li> <li>Glue spreading over surface</li> <li>Defect prevention (poor or excessive application)</li> </ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>
Product packaging	<ul><li>Production completion</li><li>Line clearance</li></ul>	<ul> <li>Environmental conformity (temperature, humidity)</li> <li>Machine set-up</li> <li>Equipment cleaning</li> <li>Equipment usage</li> </ul>
Quality control	<ul><li>Documentation review</li><li>Quality assurance</li></ul>	<ul> <li>Environmental conformity         (temperature, humidity)</li> <li>Design, dimensions, holograms, embossing, physical defects, composition consistency</li> </ul>