

GUIDELINES ON THE SELECTION OF PACKAGING MATERIAL AND CORRECT USAGE

Disclaimer: This document was compiled as basic aid, to be used by table grape exporters and stakeholders. These guidelines are neither prescribed nor regulated, since 1997. In the dynamic and heterogenous conditions of the non-regulated table grape export chain, it is each stakeholders' responsibility to evaluate best practice guidelines and to optimize practices based on own circumstance, experiences, measurements and quality reports as part its internal business procedures pertaining to risk-and quality management (systems approach for continual and incremental improvement)

ACTION	PRIMARY CONCEPT	CRITICAL GUIDELINES	NOTES	COMMENTS
1. SELECTING A MANUFACTURER	1.1 Selection based on previous performance of suppliers' product.	1.1.1 Manufacturer to supply stacking pattern protocol for each type of box/material supplied.	a) If no stacking pattern protocol is supplied, there is a definite risk of cartons failing/pallets capsizing. b) Stacking pattern protocols must be followed to the letter to avoid carton failure/pallets capsizing.	
	1.2 Based on product strength test data.	1.2.1 Manufacturer to have statistical process control in place. 1.2.2 Manufacturer must supply a guarantee with <u>each</u> batch, stating that the material complies to international standards on the box compression test (BCT) as well as the flat crush test (FCT)	a) If guarantees of product integrity under prescribed use circumstances can not be supplied, there is a definite risk of carton failure/pallets capsizing. b) Guarantees are only valid if products are used in accordance with manufacturer specifications.	
	1.3 NOT to be based on price.			
2. SELECTING A CARTON	2.1 Selection based on previous performance of box.	2.1.1 If it is guaranteed that the same material and manufacturing process is used as before, the same carton type may be bought again IF a written guarantee is (again) included.		
	2.2 Selection based on sufficient provision for air flow through the carton and stacking pattern.	2.2.1 Provision for airflow (% of total exposed area of carton) must be as per Industry standards.	a) Currently no Industry standards exist for % airflow provision. b) More ventilation holes means lower carton strength. c) Ventilation holes must be matched with pallet slat layout (7, 9, 11 slats).	

	2.3 Selection based on available technical data for carton.	2.3.1 Bottom carton must be able to withstand the pressure of all cartons with their content stacked on top of it as well as an extra % for safety.	a) An engineering safety factor is used in manufacturing design and testing in order to add strength to the carton to withstand an extra % of weight. b) Engineering factor, mass & relative humidity (RH) used in test equation. b) Manufacturer must be able to supply technical equation and results on request.	
3. TESTING CRITERIA	3.1 Formula used to calculate strength must include an engineering safety factor, relative humidity (RH) factor and the mass to be carried.	3.1.1 Engineering factor of 3-5 to be used – 4,5 is recommended. 3.1.2 RH factor of 40% (1,4) to be used. 3.1.3 Real mass of all packaging materials plus mass of product per carton must be used.		
	3.2 Box crush test (BCT) and flat crush test resistance (FCTR) must done for each batch sold.	3.2.1 A sample of each piece of board must have a BCT & FCTR done after manufacturing and AGAIN after printing to ensure strength. 3.2.2 Board failure must not occur below 330kPa of pressure. 3.2.3 The speed of applying pressure must be a maximum of 10mm/minute.		
	3.3 NEW paper must be used for board manufacturing.	3.3.1 No recycled paper may be used. 3.3.2 Paper must comply with SABS 431 standards.	a) Manufacturer must be able to prove that paper used is new and in line with SABS 431 standards.	
	3.4 Manufacturers must apply internationally accepted practices and principles in board & box manufacturing and testing.	3.4.1 Reference document: <i>Testing methods & Instruments for corrugated board (Håkan Markström)</i> . 3.4.2 Manufacturers must be able to prove that these principles and practices are applied at all times.		
	3.5 Test results must be available for each batch produced.	3.5.1 The first 10 cartons from the production line must be tested and 1 for every 1 000 produced thereafter. 3.5.2 If this testing can not be done on site by the manufacturer, tests must be done by the SABS and results be made available.		