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COMPARATIVE ANALYSES OF THE PERFORMANCE OF WOODEN AND  
PLASTIC PALLETS

( conclusions of the tests performed on SP system plastic europallets manufactured by Becker  
sp. z o.o. and on the certified wooden europallets )

Dynamic loads:

the wooden pallets are able to withstand heavier dynamic loads ( 1500 kg ) than their plastic counterparts ( 1200 kg ) and they also show smaller deflection on a high storage. But the danger of a used wooden pallet collapsing under the load on a high storage is greater than the similar risk for the used plastic pallet, due to a much faster ageing processes of wood than plastic and the weakening of planks and joints ( often invisible in wood ). SP system plastic pallets have a welded joints, which are not influenced by time, and the skids reinforced by steel, which is able to withstand the tensile stresses also in case of a serious damage of plastic material. The damage, that may cause the collapse of a plastic pallet, will never be the result of a normal tear and wear; it would have to be the outcome of an act of vandalism ( intended or not ), and clearly visible, thus displaying the sufficient warnings to the operator.

Coefficient of friction:

the coefficient of friction is higher for wood than plastic, therefore the surface of the SP system plastic pallet has a small anchoring bolts or additional peripheral rims.

Impact resistance:

wooden pallets are easier to destroy mechanically than SP system plastic pallets. The samples of LLDPE in room temperature do not break during testing. But impact resistance of plastic decreases with temperature and its elasticity remains down to – 20 C.

Summary:

the advantages of the wooden pallets are well known and include: interchangeable circulation, low prices, high mechanical properties. They disadvantages are : hygienic and aesthetic properties and fast ageing, which in turn incurs costs of replacing them for safety reasons.

Plastic pallets are easy to clean and aesthetic, and as a long term investment in a closed loop circulation they should prove to be more costs effective than wooden pallets, due to their higher durability and safety.