

And edges keep coming unglued... ..a CATAS investigation on 1,500 cases

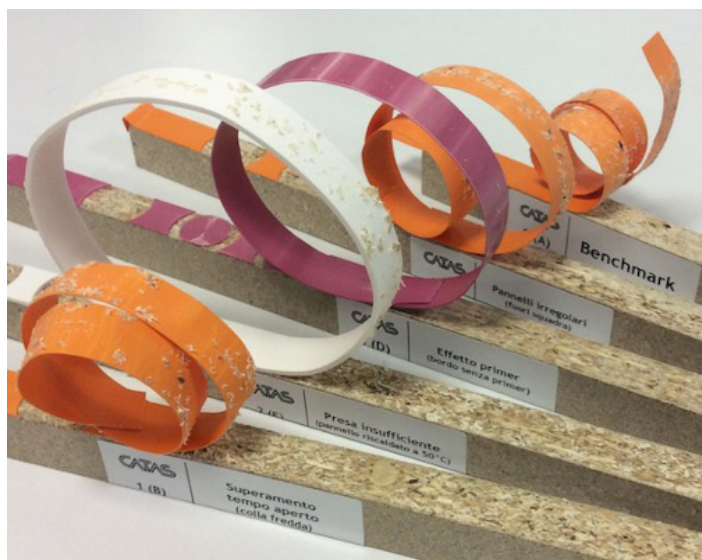
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The edging, i.e. the covering process of the side surfaces of panels, is a well-known process in the furniture industry.

In many cases it can be considered the most complex processing within a furniture factory, especially when using melamine panels which, being already “finished”, only need to be cut and drilled as well as necessarily having to be edged, obviously.

This operation is almost always carried out with the use of automatic machines called edge banders that guarantee remarkable results in terms of productivity, being also able to provide a very high aesthetic quality of the finished product depending on the materials and system adopted. But what can we say about performance? Is the gluing of the edge to the panel always “good”?



The tests carried out by Catas and in particular the investigations on defects that the institute has always faced in its daily activity, can be an interesting starting point for trying to answer this question. The Catas data indicate that the detachment of the edges is actually one of the most frequent problems among all those recorded in many years of activity (about 10% of the cases of defects examined by the institute). Consequently, even the request for tests on edged elements is always very high and some companies have also activated a continuous and systematic “quality control” on this issue with the periodic execution of random checks. Sometimes the adhesive manufacturers themselves and also those of edge banding machines require the execution of tests to verify or “certify” the quality of the gluing resulting from certain processes that involve their products or, in any case, their role and responsibilities.

The most requested test is undoubtedly the resistance of the edges to heat according to the Italian UNI 9242 standard. The method involves initially inserting the sample inside a ventilated oven at 40 ° C for 4 hours. At the end of this period, the bonding is examined and, if there are no alterations, the test continues by gradually raising the temperature of the oven by 10 degrees each step.

The procedure establishes to proceed up to 90 ° C, however interrupting the test at the temperature at which any gluing defect is observed.

The validity of this method is recognized by the whole sector having also been endorsed by a specific study carried out in 2015 by the Italian association of adhesive manufacturers (Avisa-Federchimica) together with Catas. The UNI 9242 method was in fact the only one able to discriminate a bonding performed in a proper manner compared to other procedures carried out deliberately incorrectly either for the materials used (for example edges without primer or irregularly squared panels) and for the process parameters (“cold” adhesive, insufficient weight or inadequate line speed). From this evidence, a minimum level of performance was also defined (reaching 70 ° without visible alterations of the edging) that has also been recently added as specification in the “Edge Bonding Manual” published by Avisa and Catas.

But coming back to the previous question and without prejudice to the indications on the criticality of the processing and the high demand for tests and inspections, what do the results of the tests carried out at Catas tell us? How many cases are there in which the 70 ° C limit is not respected?

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We then tried to do a simple statistical examination on the last 1,500 tests carried out by Catas, thus going back a few years in our database.

To give immediate evidence of the data collected, we report in a table the figures of the edges (as percentage) that reached the various temperatures defined by the Italian standard without any detachment but highlighting an adhesion defect at the subsequent temperature.

40°C	50°C	60°C	70°C	80°C	90°C
1,6 %	3,3 %	3,9 %	10,9 %	11,7 %	68,5 %

From these data it can therefore be deduced that the 9% of the bondings examined by Catas (more than 130 cases out of 1500) do not reach the 70 ° C requirement, therefore being at risk of detachment already during transport (remember that within a container the 50 - 60 ° C can be easily reached).

However, some attention should also be paid to the 10.9 percent of cases (over 160 out of 1500) which reached 70 ° C, however, ungluing at the following temperature. As we all know, any process is subject to a certain variability, it is sufficient for the ambient temperature to change, for example, to make a certain process less efficient. Working close to the limit is therefore never appropriate.

In conclusion, if we sum the negative data (those in red in the table) with those "at risk" (in yellow), the Catas database reveals that in about 20% of cases the gluing of the edge to the panel cannot be considered as optimal.



In conclusion, the small survey carried out in the Catas database substantially confirms the feeling already expressed in the introduction of this article, namely that edging is a complex process that probably deserves even more attention from all those subjects involved.

It is evident that the data reported in this article cannot be considered as representative of the sector as they are not the result of a real investigation on the market but, we believe, they can equally emphasize the need of both controls on processes and also routine tests on the finished product.

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