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(54) **METHOD FOR AUTOMATICALLY ONLINE DETERMINING FORMALDEHYDE EMISSION FROM WOOD-BASED PANEL**

(57) The disclosure discloses a method for automatically online determining formaldehyde emission from wood-based panels, including: mounting a formaldehyde detector on a conventional automatic sorting device for the wood-based panels, and screening out and removing unqualified wood-based panels which have formaldehyde emission greater than a predetermined value; wherein the formaldehyde detector includes a negative pressure fan and a formaldehyde sensor, in which the negative pressure fan is used for online collection of volatiles from each wood-based panel, and the formaldehyde sensor is used for detecting the volatiles to determine formaldehyde emission of each wood-based panel; under the condition that the formaldehyde emission is greater than the predetermined value, a signal is immediately transmitted to a controller on the conventional automatic sorting device for the wood-based panels, so as to screen out and remove the wood-based panel with said formaldehyde emission by the conventional automatic sorting device for the wood-based panels, thus ensuring that wood-based panel(s) product with a qualified formaldehyde emission is obtained.

METHOD FOR AUTOMATICALLY ONLINE DETERMINING FORMALDEHYDE EMISSION FROM WOOD-BASED PANEL

TECHNICAL FIELD

[01] The present disclosure relates to the field of prevention and control of formaldehyde pollution caused by wood-based panels, and in particular to a method for automatically online determining formaldehyde emission from wood-based panels.

BACKGROUND ART

[02] Formaldehyde is a colorless gas with a pungent odor and has an irritating effect to eyes and nose of human beings. The formaldehyde can be smelled at a low concentration, and an odor threshold of people to the formaldehyde is usually 0.06–0.07 mg/m^3. However, there are great individual differences in odor threshold, and the odor threshold of some people may reach 2.66 mg/m^3. Long-term exposure to formaldehyde at a low concentration may lead to headache, dizziness, fatigue, sensory disturbance and reduced immunity, and further cause drowsiness, memory loss or neurasthenia and mental depression. Chronic poisoning has great harm to a respiratory system, and specifically, long-term exposure to formaldehyde may cause respiratory dysfunctions and hepatic toxic lesions such as hepatocyte damage and abnormal hepatic radiation protection ability.

[03] Therefore, zero-formaldehyde wood-based panels have become the best-selling products in the board industry. However, formaldehyde-containing binders are inevitably used in manufacturing processes. Although there are corresponding measures to remove formaldehyde, it is impossible to guarantee that formaldehyde is completely removed. Therefore, in order to ensure product quality and avoid false propaganda, it is urgent for those skilled in the art to develop a factory inspection apparatus for the zero-formaldehyde wood-based panels.

SUMMARY

[04] The present disclosure aims to solve the problem of unqualified formaldehyde emissions from wood-based panels. For this reason, the present disclosure provides a method for automatically online determining formaldehyde emission from wood-based

panels, which could screen out formaldehyde-containing defective products, thus ensuring that only wood-based panels with formaldehyde emission meeting requirements are allowed to leave a factory.

[05] The method for automatically online determining formaldehyde emission from wood-based panels includes:

[06] mounting a formaldehyde detector on a conventional automatic sorting device for the wood-based panels, and screening out and removing unqualified wood-based panels which have formaldehyde emission greater than a predetermined value,

[07] wherein the formaldehyde detector includes a negative pressure fan and a formaldehyde sensor, in which

[08] the negative pressure fan is used for online collection of volatiles from each wood-based panel, and the formaldehyde sensor is used for detecting the volatiles to determine formaldehyde emission of each wood-based panel; under the condition that the formaldehyde emission is greater than the predetermined value, a signal is immediately transmitted to a controller on the conventional automatic sorting device for the wood-based panels, so as to screen out and remove the wood-based panel with said formaldehyde emission by the automatic sorting device for wood-based panels, wherein the controller is an STM32F103V8 single-chip microcomputer.

[09] The method according to the present disclosure has the advantages of high maturity, easy operation, and low cost, and could be operated automatically, thus reducing labor cost, and having great market demands and a broad application prospect.

Conclusies

1. Werkwijze voor het automatisch online bepalen van formaldehyde-emissie van panelen op basis van hout, waarbij de werkwijze het volgende omvat:

het monteren van een formaldehydedetector op een conventionele automatische sorteerinrichting voor de panelen op basis van hout, en het uitselecteren en verwijderen van ongekwalificeerde panelen op basis van hout die een formaldehyde-emissie van meer dan een vooraf bepaalde waarde hebben,

waarbij de formaldehydedetector een negatievedrukventilator en een formaldehydesensor omvat, waarin

de negatievedrukventilator gebruikt wordt voor online verzameling van vluchtige stoffen van elke paneel op basis van hout, en de formaldehydesensor gebruikt wordt voor het detecteren van de vluchtige stoffen om formaldehyde-emissie van elk paneel op basis van hout te bepalen; waarbij onder de omstandigheid dat de formaldehyde-emissie groter is dan de vooraf bepaalde waarde, een signaal direct uitgezonden wordt naar een besturing op de conventionele automatische sorteerinrichting voor de panelen op basis van hout, om zo het paneel op basis van hout met de formaldehyde-emissie uit te selecteren en te verwijderen middels de automatische sorteerinrichting voor panelen op basis van hout, waarbij de besturing een STM32F103V8 microcomputer met enkele chip is.