
Applying People- and Eco-Friendly Temporary Materials to Civil Engineering Fields
– KAMIWAZA, a solution for improving the productivity of temporary construction using paper materials –

Oji Holdings Corporation (President: Masatoshi Kaku, Head office: Tokyo) and Shimizu Corporation (President: Kazuyuki Inoue, Head office: Tokyo) have jointly developed KAMIWAZA, a technology for improving the productivity of temporary construction using paper materials to contribute to achieving the Sustainable Development Goals.

KAMIWAZA is a solution that uses paper materials as temporary construction materials used in civil engineering. By using paper materials that are easy to handle as a substitute for the steel and wood materials conventionally used as temporary construction materials, the burden on workers can be reduced and the productivity of temporary construction will improve. The paper material mainly used as the temporary construction materials are HiPLE-ACE[®](*1) of Oji Interpack co., Ltd. and Hatosheet(*2) of Oji Kinocloth Co., Ltd.



HiPLE-ACE[®] of Oji Interpack co., Ltd.



Hatosheet of Oji Kinocloth Co., Ltd.

(*1) HiPLE-ACE[®]

A corrugated board material with a three-layer structure used as a packing material for heavy loads, having a high shock absorption performance and high strength.

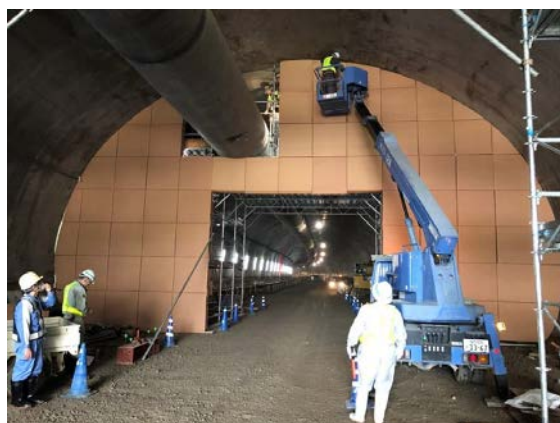
(*2) Hatosheet

A nonwoven fabric that uses wood pulp as its main material, capable of controlling the diffusibility, retentivity, and volatility of the liquid it absorbs.

■ Case of use of HiPLE-ACE[®] (1) Use in tunnel wind gates

Tunnel wind gates temporarily installed inside mountain tunnels are used to stop rapid air flows that may arise during tunnel boring. In conventional construction methods, (disposable) dedicated balloons made of nylons have been used to build the walls that stop the cross section of the tunnel while lifting components such as steel materials with a crane.

If HiPLE-ACE[®] is used, by fixing the corrugated board material (with an area of about 1 m²) to the previously built support with a one-touch method, a tunnel wind gate of about 100 m² can be built using a tower wagon only. In addition, corrugated boards are recyclable and thus construction costs can be halved compared to conventional construction methods. The use of HiPLE-ACE[®] shown below was done at a construction site for a road tunnel in Nagasaki Prefecture.



New construction method using HiPLE-ACE[®]

■ Case of use of HiPLE-ACE® (2) Use in guards boxes

On construction sites, guards are stationed at the entrance and exit to ensure the safety of passing pedestrians and vehicles (drivers). In some cases, boxes are installed as a waiting place for guards, but the boxes cannot be installed at all entrances and exits because of space restrictions. Moreover, their weight makes them difficult to install and move.

The guard box using HiPLE-ACE® is lightweight and compact, enabling it to be carried by women or elderly people, making it easy to assemble the box. The guard box using HiPLE-ACE® can be used as a simple wind prevention means to improve the work environment in wintertime.



Guards box using HiPLE-ACE®

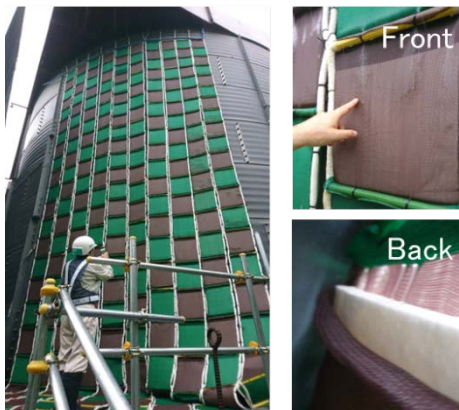


A guards box in a folded state

■ Case of use of Hatosheet: Earth color cool sheet

In civil engineering in mountainous areas, equipment with colors that harmonize with the environment (earth colors) such as green and brown is used to minimize the influence on birds of prey. However, in order to prevent temperature rises due to sunlight and stabilize the quality of the concrete, it has been generally necessary in conventional cases to cover the periphery of the aggregate storage equipment with black shading nets etc. in aggregate storage equipment for concrete materials.

The earth color cool sheets using Hatosheet is capable not only of protecting birds of prey thanks to the use of earth colors but also of preventing the temperature rise of the aggregate storage equipment by the use of Hatosheet installed inside the bag and containing water. The case of use of the earth color cool sheet was demonstrated and tested in the construction of a dam in Iwate Prefecture.



Earth color cool sheet using Hatosheet



A scene of installation of the cool sheet to the aggregate storage equipment (the cool sheet is installed at the part surrounded by the red frame in the picture.)

Oji Holdings Corporation and Shimizu Corporation will continue to develop new solutions that use paper materials.

Contact

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