

New Film Laminated Steel Sheet for 18L Can and Pail Can

As the use of lacquer paints containing endocrine disruptors such as bisphenol A has recently been considered a social problem, the need for replacing these lacquers with laminated films has grown for 18L cans and pail cans, the insides of which are still painted with lacquers. An additional merit of using film laminated steel sheets is that can manufacturing costs can be reduced by eliminating the painting process. To meet the needs mentioned above, NKK has led the development of new coil laminated steel sheets for 18L cans and pail cans that can be used for a wide variety of contents. The outlines are introduced as follows.

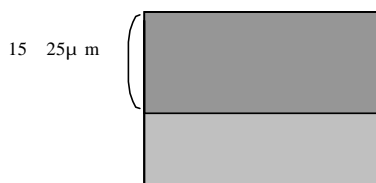
The new laminated steel sheets are laminated with either of two types of plastic films, which use low-cost resins and contain no harmful substances such as bisphenol A and dioxin. This first of these films, (1) PP (polypropylene) film, is chemically stable against acid and alkaline

promoting film delamination, the film delamination width was measured at the cross-cut. The adhesion strength of the film was measured by the T-peel method where two test-pieces cut into the width of 5mm were pasted with the two-film side inside.

With the increase of the PE mixing ratio, film delamination width is decreased by the increase of adhesion to TFS and the restriction of diffusion of alkaline solution into the interface. On the other hand, the film peeling strength decreases because of the interlayer detachment between two layers. When the peeling strength is low, the film peels off easily at the seamed part between the can-end and the body, resulting in insufficient pressure resisting strength. Therefore, proper balance of the PE mixing ratio is controlled to satisfy both corrosion resistance and peeling strength.

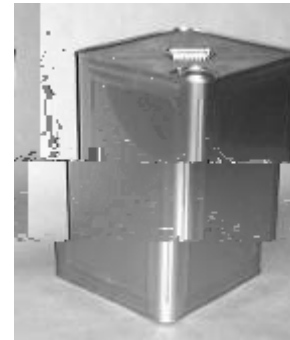
NKK's PP laminated steel sheet achieves the balance of corrosion resistance and adhesion in high level by controlling the PE mixing ratio in the adhesion layer to the optimum value mentioned-above.

shows the cross section of the PET laminated steel sheet for food container use. The biaxially oriented PET-I (isophthalic acid copolymerized PET) film is laminated on TFS. The formability and strength of the film are controlled by the amount of biaxial orientation of the PET-I film. This film shows excellent corrosion resistance to food elements such as organic acids and sulfur containing compounds, therefore it is well suited for food container use.

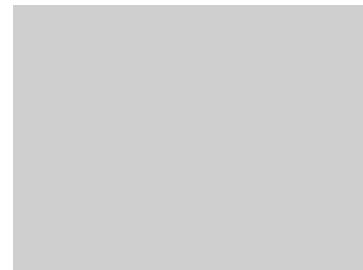


shows examples of cans made from NKK's new laminated steel sheets. (A) is an example of 18L welding can made from the PP laminated BRITE WEL (NKK's weldable TFS without grinding). A wide range of acidic and alkaline contents are able to be packed, and the pressure resisting strength exceeds the standard of Hazardous

Materials Safety Techniques Association. (B) is an example of pail can end, laminated with the PP film inside and the white PET film outside, which makes possible clear and colorful printing. The film adhesion is high and the film does not peel off at the drawn circumference of the can end.



(A) 18L welding can



(B) Pail can end

In advance of the world, NKK has developed the two types of new environmentally friendly and low-cost coil laminated steel sheets for 18L cans and pail cans. The PP type using the originally developed two layered film suitable for a wide range of acidic and alkaline contents, and the PET type using the biaxially oriented PET-I film suitable for food container use.

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