

**Abstract:**

JFE Steel developed and commercialized a resin- laminated steel sheet called "UNIVERSAL BRITE" Type E which is applicable to large cans such as 18 l cans and pail cans using a newly-developed 2-layer

na ed eel hee in he 18 l can and pail can field include a product which is manufactured by the can maker in 1-l-heel ni b lamina ing a hick pol e h l-ene (PE) film of elecrol icall chromi m coa ed eel (ECCS) in hee form, and a prod c made b lamina -ing a hick film of random pol prop lene (PP) (PP-PE random copol mer) on ECCS b direc e r ion of he mol en re in from a T-die.<sup>3)</sup> In bo h ca e , e of he e prod c i limi ed o ome high grade can d e o he high co of he re in, and he ha e no reached he age of ide pop lari a ion a an alerna i e o pain ed can , hich are ine pen i e and are ed in large n mber .

Again hi backgro nd, JFE Steel a he r in he orld o de elop and commerciali e a ne re in film-lamina ed eel hee , UNIVERSAL BRITE Type E (ecolog ), hich fea re a lo er o al can-making co han pain ed can and i applicabl o ari o con en from acidic o alkaline, aiming a pop lari a ion of film-lamina ed 18 l can and pail can .

## 2. Concept of Laminated Film Design

Unlike con en ional be erage can and food can applica ion , hen film-lamina ed eel hee are applied o 18 l can and pail can , he ma erial m be i able for a ide range of can con en . Thi mean ha he lamina ed film m be chemicall able in he pre ence of a ide range of con en , from acidic o alkaline. In addition, he ma erial m al o pro ide corro ion re i ance again rfac an ch a de ergen , hich are pical con en of 18 l can and pail can .

In man ca e , he e erior of he can i lacq er-pain ed o indica e he con en or impar de ign fea re . Ho e er, if he hea re i ance of he film i inad-eq a e, icking in he o en d e o film mel ing become a problem. Al ho gh here ha been rend o ard lo er baking empera re in recen ear a a mean of a ing energ , he baking empera re i n -1.33 eT019.4 T20 TD20 n e i a a mean1T -1f a30 T ( )T h1.016227 TD0.0125 Tc0.3



homo-PP and block PP, hich ho ed e cellen hea



## 6. Status of Practical Application and Development of Expanded Range of Applications

The first order for UNIVERSAL BRITE Type E from a large manufacturer of 18 l cans was received in March 2002, and sales volume has increased steadily since that time. The 18 l can and pail cans shown in Photo 1 illustrate an example of can-making of welded cans using ECCS for welded cans (JFE BRITE) as the base material, a steel sheet which enables grinding-free welding. In addition to displaying excellent corrosion resistance for a wide range of contents from acidic to alkaline, including brines, high productivity is realized by high pre-reheating strength, clearing the standard of the Hazardous Material Safe Technique Association, and has earned a high evaluation from consumers. This technology was reported on the front page of Metal & Technology of October 15, 2002, and received numerous responses.

Among the applications of 18