FOREWORD

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Steel sheets for cans are thin steel sheets that possess excellent corrosion resistance, formability and weldability, and are used in a wide range of can applications, including food and beverage cans, 18-liter cans, pail cans and others. Surface-treated steel sheets such as tinplate (tin-plated steel sheets) and tin free steel (TFS; electrolytic chromic acid treated steel sheets) are representative examples of steel sheets for cans. These materials have a long history and have earned a reputation for reliability from the market as safe container materials that can be used with peace of mind. Recently, there have been large changes in the environment surrounding steel sheets for cans, including recent sluggish demand in Japan's domestic market, intensifying competition with other steel makers in the global marketplace and competition with other can materials. To secure competitiveness against other materials such as PET bottles, aluminum cans and the like in the future, tireless material development and basic research that anticipate the needs of customers, as well as the development of cutting-edge process technologies, will be indispensable.

This issue of JFE Technical Report reviews the features of JFE Steel's representative steel sheet products for cans and their manufacturing technologies, and also introduces a new high speed cold rolling technology, material design technology and new products developed in recent years.

Together with the heightened needs for harder and thinner gauge steel sheets for cans, realization of high speed, high efficiency rolling technologies and a flexible response to multi-kind production from hard temper to softer temper materials are also demanded. "High speed rolling technology by hybrid lubrication," introduced in this issue, is a revolutionary system based on a circulating lubrication method for circulating use of rolling oil, and has the capability to respond to a diverse product mix while demonstrating excellent lubricating performance in high speed rolling.

At JFE Steel, tin mill black plate (cold-rolled steel sheets as the substrate for plating) accounts for the largest weight in our sales of steel sheets for cans. We are responding to a wide range of customer requirements for these materials by the development of an original

material design technology and optimization of manufacturing conditions. As several examples, this issue presents papers on research on the hot ductility of Nb-and B-added ultra-low carbon steel for large welded cans, and the influence of Nb addition on the size of ferrite grains in ultra-low carbon steel for cans.

In efforts to protect the environment, we have also developed a diverse range of products with a focus on steel sheets laminated with thermoplastic resin films. This issue introduces basic research on the content release properties of laminated steel sheets for food cans, and laminated steel sheets for 18-L cans, which were developed and commercialized in cooperation with customers.

As JFE Steel will continue research and development on new manufacturing processes and new products in the future so as to contribute to society through the supply of high quality steel sheets for cans that respond to the requirements of customers, I appreciate your further guidance and support.