



Study on the Advanced Utilization of Iron and Steel Scrap in Automotive Parts (Tokyo Steel Mfg. Co., Ltd.)

Outline of the Verification Project

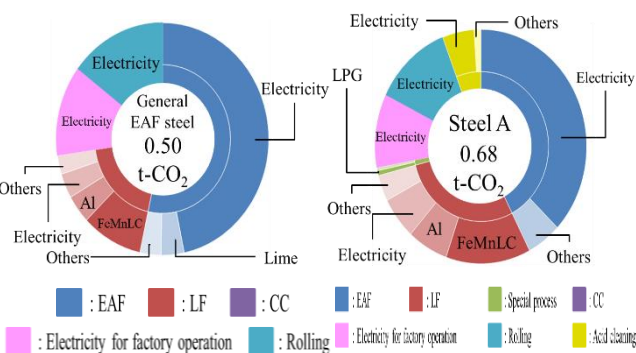
With the goal of manufacturing steel sheet for automobiles using waste scrap as the main raw material, the study evaluated the applicability of electric arc furnace steel, which includes tramp elements such as Cu and Ni, for automotive parts, calculated environmental improvement effects, and investigated impacts of factors specific to electric arc furnace steel on surface quality.

Background and Purpose

Currently, about seven million tons of steel scrap is exported from Japan every year as a valuable resource. This project aims to regenerate surplus steel scrap in Japan for horizontal recycling to create new resource circulation in Japan.

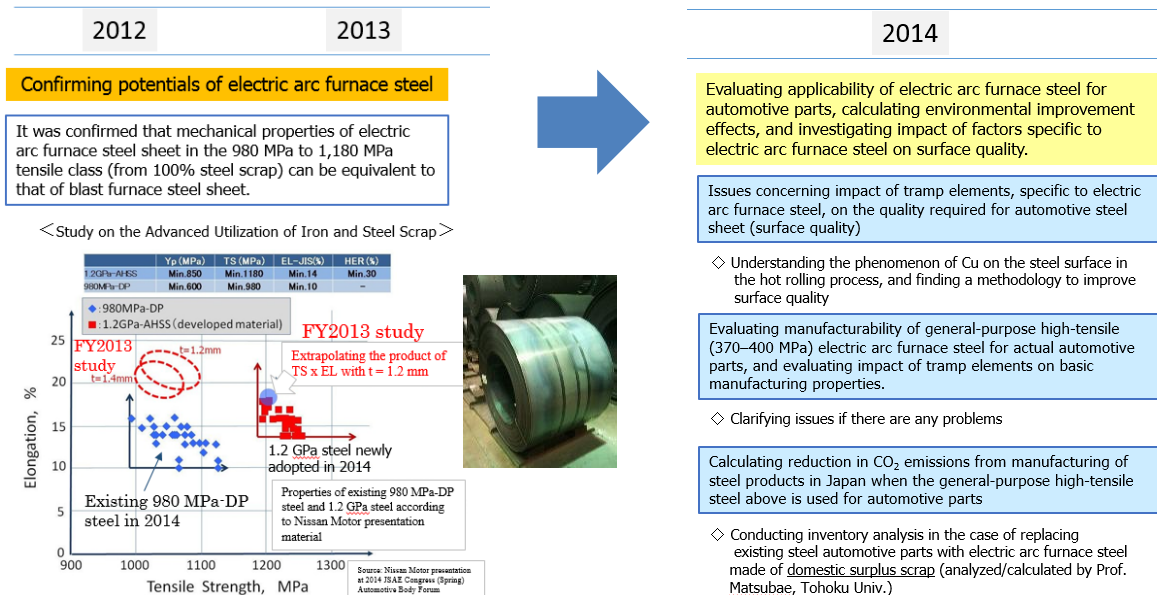
Environmental Improvement Effects

Compared with 1.91-ton CO₂ emissions from manufacturing of plain steel using blast furnaces, which was calculated in the past, CO₂ emissions from manufacturing of plain steel and automotive steel sheet using electric arc furnaces are 0.50 tons (26%) and 0.68 tons (35%), respectively.



Key Points in the Verification Project

Evaluating potentials of electric arc furnace steel made of 100% steel scrap and clarifying issues in pursuing horizontal recycling for automotive steel sheet.



Progress Towards Commercialization

There is no concern about Cu embrittlement even in the case of 0.30% Cu-enriched electric arc furnace steel. Manufacturability evaluation of actual parts verified that Cu contained in steel scrap is not harmful but can be utilized effectively.

