

**NSSC Markets NSSC[®] FW2, the Second FW series Stainless Steel using World-first Technology
– 40% Reduction in Rare Metals through the Use of Tin (Sn) –**

NSSC (Nippon Steel & Sumikin Stainless Steel Corporation; address: Chiyoda-ku, Tokyo; president: Hiroshi Kinoshita) announced today that, based on a world-first technology originally developed by NSSC that drastically enhances the corrosion resistance of ferritic stainless steel by adding a micro amount of tin (Sn), it has newly developed and commercialized NSSC[®] FW2 (Forward Two), a “highly corrosion resistant, low-interstitial ferritic stainless steel”, having corrosion resistance equal or superior to SUS304 (18%Cr-8%Ni) which is the most common grade in the world. NSSC[®] FW2 was completed by further developing the technology used for NSSC[®] FW1 that was marketed in July this year, and which is one of the high corrosion-resistant products under the FW-series line-up.

NSSC[®] FW2 is a 16%Cr steel with no added Ni, Mo, or Cu; meanwhile, the content of rare metals was reduced by a total of 40%, when compared to SUS304. Furthermore, since NSSC[®] FW2 also has excellent workability, it can be widely used in the same way as SUS304.

NSSC steadily received expanding orders for NSSC[®] FW1, marketed in July, with inquiries exceeding 2,000 for half a year.

NSSC has received over 2,000 inquiries for NSSC[®] FW1, and order volume has expanded steadily, with orders currently amounting to 10,000 tons per year.

NSSC proposes that these new FW-series products could make great candidates for a new general-purpose grade, overtaking the two leading types of steel available (SUS304 and SUS430), which account for more than 50% of all distributed stainless steel, even now, when 100 years have passed since stainless steel was first invented. Furthermore, the FW series products contribute to the conservation of rare metals because they utilize ultra fine-grain steel with low alloy elements (no added Ni, Mo, or Cu, and with a reduction of Cr); thus, they are also stable in cost by minimizing the effect of the fluctuations of raw material prices.

Basic Technology of NSSC[®] FW2

- 1) NSSC[®] FW2 is a highly corrosion resistant and low-interstitial ferritic stainless steel developed by elaborating on NSSC's unique seed technology used for NSSC[®] FW1, in which the corrosion resistance was drastically improved when combining our low-interstitial technology with the addition of a micro amount of Sn. By adding approx. 0.3% Sn to the 16%Cr base steel, corrosion resistance that is equal or superior to SUS304 was achieved, while it also succeeded in reducing the content of rare metals, such as Cr and Ni, by approx. 40% from SUS304.
- 2) Sn exists as an oxide and metal in a passivation film, which consists of a Cr oxide, and is thought to enhance the stability and protection performance of the passivation film, as well as contribute to the regeneration capacity of the passivation film itself (see Figure 1).

Solutions offered by NSSC® FW2

NSSC proposes that NSSC® FW2 could become invaluable for the various applications shown below, and it is also a great substitute for SUS304, which constitutes a substantial portion of current customer use.

- 1) Because NSSC® FW2 has corrosion resistance equal or superior to SUS304, along with excellent workability, it can be used for a wide variety of applications, such as electrical appliances, furniture, building components, and kitchen utensils/instruments, etc., which are the current common applications of SUS304.
- 2) NSSC® FW2 contributes to the saving rare metals. It can save a total of approx. 40% of Cr and Ni content when compared to SUS304. NSSC® FW2 also has excellent stability in price.
- 3) Working conditions such as welding, pressing and forming are basically comparable to existing low-interstitial ferritic stainless steel. NSSC can propose the optimum conditions that meet the needs of each customer, in order to make the most of the characteristics of this product.

Positioning the FW Series as a New Standard Grades for General-purpose I

1. Future expansion

NSSC®FW1 and FW2, have adaptive flexibility for a wide variety of applications based on excellent material characteristics and price stability, and they are being well-received by customers. NSSC is currently positioning these grades as part of its main coil and sheet product line-up, since they could become new standard steel candidates in a wide variety of applications—much in the same way that the two leading types of steel, SUS430 and SUS304, are currently used. NSSC plans to actively expand the applications of these products.

2. Exclusive website

In addition to answering direct inquiries and those sent via distribution channels as before, we designed a website exclusively for FW-series products that can explain in detail the product characteristics and receive inquiries, thus widely meeting the needs of customers.

URL: <http://www.ns-sc.co.jp/fw>

E-mail: fw@ns-sc.co.jp

Reference:

Regarding the meaning of the name “NSSC® FW2”:

- In full: NSSC Forward Two
- FW: Forward, Ferritic for the World

This refers to “advancement” and a “ferritic strategic product that takes aim at the global market”.

Photo. 1: Effect of Sn on corrosion resistance

Photo. 2: Improved salt spray corrosion test results

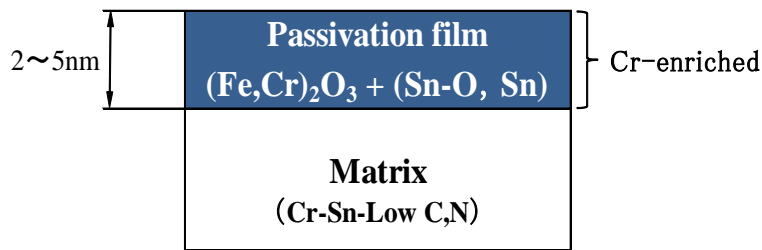


Figure 1: Schematic illustration showing the effect of Sn on corrosion resistance enhancement (assumed)

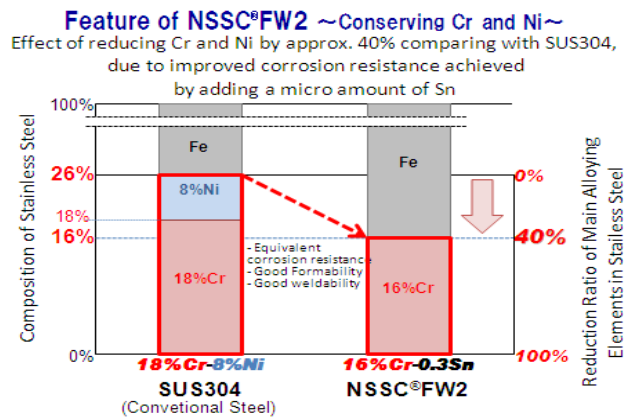


Figure 2: Explanatory diagram of NSSC® FW2's rare metals reduction effect

< Application Examples of NSSC®FW2 >



Photo. 3: Designed sink

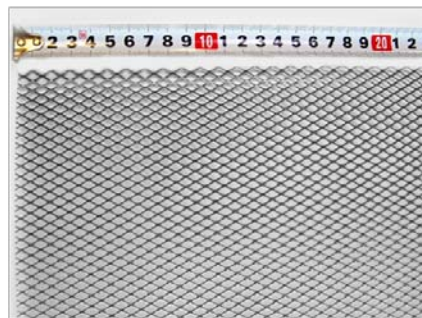


Photo. 4: Expand metal (lath net)