

# Ni- and Mo-Free Ferritic Stainless Steel with High Corrosion Resistance, JFE443CT†

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**Abstract :**

High corrosion resistant ferritic stainless steel JFE443CT has been developed. With the increase of Cr content to 21% and the addition of Cu, its corrosion resistance is equivalent to that of SUS304 in the neutral chloride environment. Moreover, without the addition of Ni and Mo, its price is stable even when the price of Ni and Mo soars. JFE443CT has been applied widely as the substitution for SUS304, the price of which is fluctu-

tails on examples of application.

## 2. Background of Development

### 2.1 Development Targets and Policy

The development target was to create a ferritic stainless steel with corrosion resistance equivalent to SUS304 in the neutral chloride environment, without the addition of Ni and Mo, and with a price stable even when the price of Ni and Mo soars. The development policy was to increase the Cr content to 21% and add Cu to the steel. The target was to achieve a price equivalent to SUS304, and the policy was to use JFE443CT, JFE S, and SUS304.



C C V C  
 E V V  
 F. 1( ), C  
 (C/(F  
 + C)) V %  
 %X- %M V M(XPS) %

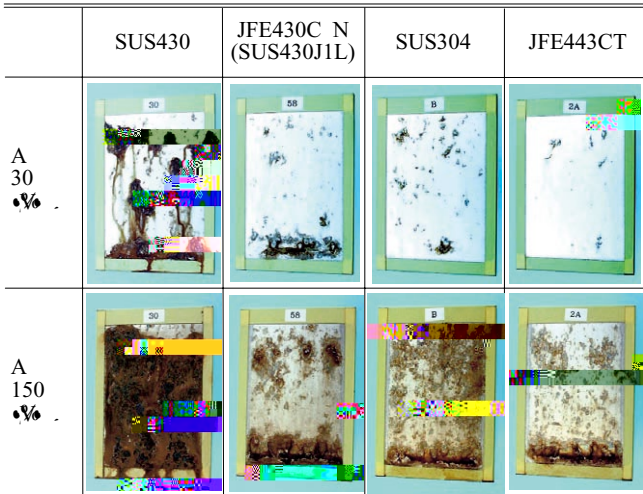
Fig. 2. T

C V C  
 C  
**Figure 3.** C V  
 MH 21%C -0.3%T  
 18%C -0.3%T T V  
 MH  
 700 V 10  
 M V 16 T M MH  
 MH-  
 V -V  
 I V MH %  
 -M C V  
 18%C -0.3%T M MH  
 21%C -0.3%T %  
 C T C

C V  
 -V OV V  
 MH 2 V  
 C V  
 C T C  
 4 (-)-12( ) 4

Fig. 4. T





1 A 30% (JA O M 609-91 (JA O: J A ) (#600 60 × 80 )

V% JFE443CT SUS304  
 Photo 2 V V  
 O (20  
 ). I SUS304, V  
 JFE443CT %  
 SUS304.

A , JFE443CT SUS304  
 ( ) V

### 3.2 Physical Properties

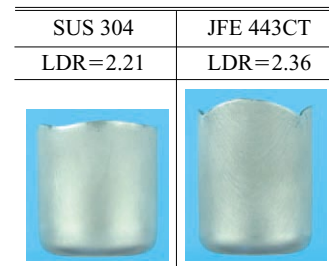
T V% • V V JFE443CT  
 Table 3. T V% • V V T

2 M JFE443C  
 (TW, SV : 0.8 )

S	0.2% V (MP )	T (MP )	E (%)	M r-
JFE443CT	305	483	31	1.3
SUS430	320	490	29	1.0
JFE430C N (SUS430J1L)	356	496	29	1.3
SUS304	260	645	60	1.0

2

SUS430J1L  
 SUS304. I V V  
 JFE443CT SUS304.  
 Photo 1 V 30 150 %  
 JASO M 609-91. SUS430 %  
 A SUS430J1L  
 SUS304, V V



3 C JFE443C D 304 ( 0.8 )

• V. V . . . . . W  
 • • • • C V SUS304,  
 • • • • V . . . .  
 • • • • % A . . . .  
 • • • • JFE443CT . . . .  
 % SUS304 (7.74 . . . 7.93),  
 • • • • %2.5% • M . . . .

**4. Conclusion**

JFE443CT . . . . . ( . . . .  
 . . . . SUS304) . . . .  
 . . . . I • . . . . V. V % % . . . . C  
 • • • • (21%) . . . . C (0.4%). JFE443CT . . . .  
 • • • • V. . . . SUS304, . . . . N . M . . . .  
 T . . . , JFE443CT . . . .  
 SUS304 . . . M • . . . .

• • • •  
 T V • N . . . . V% • 2006, . . . .  
 V • SUS304 . . . . T . . . .  
 JFE443CT . . . . V, % A V . . . .  
 • • • • % . . . . SUS304 . . . .  
 • • • • W . . . . .  
 • • • • W . . . . .  
 E V . . . . W • . . . . **Photo 4.**  
 JFE443CT . . . V • . . . .  
 • • • • V • . . . . SUS304. W . . . .  
 • • • • % . . . . W% . . . .

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 5. I . . . . S% V. . . . A . . . . L . . . . C . . . .  
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 Y . . . . , H . . . . CA05, . . . .