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Recent Activities in Research of Stainless Steels

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µ18Cr-1.5Mo>†6ä\$Í K S | } \_ Ü a å ç\$Í#Ö µ S †%Ê

Þ «5ð \ K Z>\* ± ¼# C \_ > E •\$Í5ç µ S †%Ê'2 M • G \ \_ |

Ø Ç ™ Û - °(Ô « , å Þ «5ð >R30-2>30Cr-2Mo>R24-2>24Cr-2Mo>\*

o>\*RSX-1>18Cr-1.5Mo>†6ä\$Í K S | } \_ Ü a å ç\$Í#Ö µ S †%Ê

\_ f € S Ç ™ Û - °(Ô « , å Þ «5ð>& R430UD>17Cr>\*RSX-1>'

Synopsis :

The demand and requirements for advanced properties of stainless steels for automotive exhaust systems, buildings, and electric products are increasing. High performance ferritic stainless steels for automotive exhaust manifolds (R429EX: 15Cr-0.9Si-0.45Nb), catalytic converters (R20-5USR: 20Cr-5Al-La-Zr), and mufflers (R436LT: 18Cr-1.2Mo-Ti, R432LTM: 18Cr-0.5Mo- Ti) were developed on the basis of the studies of thermal fatigue, high temperature oxidation, and condensate corrosion. High purity ferritic stainless steels (R30-2: 30Cr-2Mo, R24-2: 24Cr-2Mo, R445MT: 22Cr-1.5Mo, RSX-1: 18Cr-1.5Mo) for buildings were also developed on the basis of the study of atmospheric corrosion. Investigations into ridging mechanism led to the improvement of the formability of ferritic stainless steels (R430UD: 17Cr, RSX-1). Kawasaki Steel produces these excellent ferritic stainless steels by using newly installed production facilities in Chiba Works.

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## 要旨

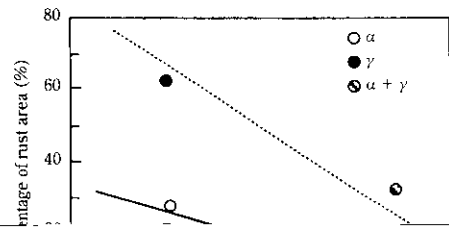
ステンレス鋼研究部門では千葉製鉄所に導入した最新鋭設備を駆





の寿命の 3.3 倍、R436LT (18Cr-1.2Mo-0.3Ti) の寿命は SUH409L の寿命の 1.7 倍となることを明らかにした<sup>10)</sup>。

これらの知見から高耐食性マフラー材として 18%Cr に Mo を添加した R436LT, R432LTM (17Cr-0.5Mo-0.3Ti) を開発した。これらの鋼種は、高生産性、低コストの普通鋼生産設備 (タンデムミル冷間圧延、普通鋼連続焼鈍ラインでの焼鈍酸洗) を活用して製造され、



ステンレス鋼市場において近年大きく成長した分野は建材用途で

Pitting index  
Fig. 6 Relation between rust area and pitting index of ferritic,

Table 1. Properties of stainless steel for industrial materials

Material	Yield strength (MPa)	Tensile strength (MPa)	Elongation (%)	Corrosion resistance
SUS304	205	520	40	Good
SUS316	205	520	40	Excellent
SUS321	205	520	40	Good
SUS309S	205	520	40	Excellent
SUS310S	205	520	40	Excellent
SUS312	205	520	40	Good
SUS315	205	520	40	Good
SUS316L	190	505	40	Excellent
SUS317L	190	505	40	Excellent
SUS317LN	190	505	40	Excellent
SUS317LNH	190	505	40	Excellent
SUS317LNH2	190	505	40	Excellent
SUS317LNH3	190	505	40	Excellent
SUS317LNH4	190	505	40	Excellent
SUS317LNH5	190	505	40	Excellent
SUS317LNH6	190	505	40	Excellent
SUS317LNH7	190	505	40	Excellent
SUS317LNH8	190	505	40	Excellent
SUS317LNH9	190	505	40	Excellent
SUS317LNH10	190	505	40	Excellent
SUS317LNH11	190	505	40	Excellent
SUS317LNH12	190	505	40	Excellent
SUS317LNH13	190	505	40	Excellent
SUS317LNH14	190	505	40	Excellent
SUS317LNH15	190	505	40	Excellent
SUS317LNH16	190	505	40	Excellent
SUS317LNH17	190	505	40	Excellent
SUS317LNH18	190	505	40	Excellent
SUS317LNH19	190	505	40	Excellent
SUS317LNH20	190	505	40	Excellent
SUS317LNH21	190	505	40	Excellent
SUS317LNH22	190	505	40	Excellent
SUS317LNH23	190	505	40	Excellent
SUS317LNH24	190	505	40	Excellent
SUS317LNH25	190	505	40	Excellent
SUS317LNH26	190	505	40	Excellent
SUS317LNH27	190	505	40	Excellent
SUS317LNH28	190	505	40	Excellent
SUS317LNH29	190	505	40	Excellent
SUS317LNH30	190	505	40	Excellent
SUS317LNH31	190	505	40	Excellent
SUS317LNH32	190	505	40	Excellent
SUS317LNH33	190	505	40	Excellent
SUS317LNH34	190	505	40	Excellent
SUS317LNH35	190	505	40	Excellent
SUS317LNH36	190	505	40	Excellent
SUS317LNH37	190	505	40	Excellent
SUS317LNH38	190	505	40	Excellent
SUS317LNH39	190	505	40	Excellent
SUS317LNH40	190	505	40	Excellent
SUS317LNH41	190	505	40	Excellent
SUS317LNH42	190	505	40	Excellent
SUS317LNH43	190	505	40	Excellent
SUS317LNH44	190	505	40	Excellent
SUS317LNH45	190	505	40	Excellent
SUS317LNH46	190	505	40	Excellent
SUS317LNH47	190	505	40	Excellent
SUS317LNH48	190	505	40	Excellent
SUS317LNH49	190	505	40	Excellent
SUS317LNH50	190	505	40	Excellent
SUS317LNH51	190	505	40	Excellent
SUS317LNH52	190	505	40	Excellent
SUS317LNH53	190	505	40	Excellent
SUS317LNH54	190	505	40	Excellent
SUS317LNH55	190	505	40	Excellent
SUS317LNH56	190	505	40	Excellent
SUS317LNH57	190	505	40	Excellent
SUS317LNH58	190	505	40	Excellent
SUS317LNH59	190	505	40	Excellent
SUS317LNH60	190	505	40	Excellent
SUS317LNH61	190	505	40	Excellent
SUS317LNH62	190	505	40	Excellent
SUS317LNH63	190	505	40	Excellent
SUS317LNH64	190	505	40	Excellent
SUS317LNH65	190	505	40	Excellent
SUS317LNH66	190	505	40	Excellent
SUS317LNH67	190	505	40	Excellent
SUS317LNH68	190	505	40	Excellent
SUS317LNH69	190	505	40	Excellent
SUS317LNH70	190	505	40	Excellent
SUS317LNH71	190	505	40	Excellent
SUS317LNH72	190	505	40	Excellent
SUS317LNH73	190	505	40	Excellent
SUS317LNH74	190	505	40	Excellent
SUS317LNH75	190	505	40	Excellent
SUS317LNH76	190	505	40	Excellent
SUS317LNH77	190	505	40	Excellent
SUS317LNH78	190	505	40	Excellent
SUS317LNH79	190	505	40	Excellent
SUS317LNH80	190	505	40	Excellent
SUS317LNH81	190	505	40	Excellent
SUS317LNH82	190	505	40	Excellent
SUS317LNH83	190	505	40	Excellent
SUS317LNH84	190	505	40	Excellent
SUS317LNH85	190	505	40	Excellent
SUS317LNH86	190	505	40	Excellent
SUS317LNH87	190	505	40	Excellent
SUS317LNH88	190	505	40	Excellent
SUS317LNH89	190	505	40	Excellent
SUS317LNH90	190	505	40	Excellent
SUS317LNH91	190	505	40	Excellent
SUS317LNH92	190	505	40	Excellent
SUS317LNH93	190	505	40	Excellent
SUS317LNH94	190	505	40	Excellent
SUS317LNH95	190	505	40	Excellent
SUS317LNH96	190	505	40	Excellent
SUS317LNH97	190	505	40	Excellent
SUS317LNH98	190	505	40	Excellent
SUS317LNH99	190	505	40	Excellent
SUS317LNH100	190	505	40	Excellent



Testing condition

Thickness: 0.68 mm  
Punch dia: 33 mm  
Blanking force  
for ferritic grade 0.5t