

Development of Hydrogen Gas Injection Method for Promoting Decarburization of Ultra-low Carbon Steel

in RH Degasser*

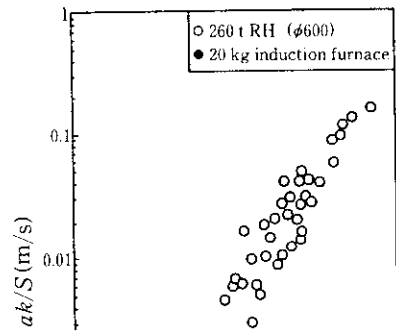


Synopsis:

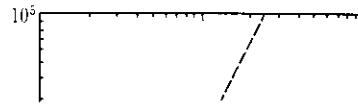
Kawasaki Steel has developed a hydrogen gas injection method at the RH degasser for promoting the decarburization reaction of the ultra-low carbon steel in the range of a carbon content of less than 20 ppm. Hydrogen gas is

2 Study of Decarburization Behavior of Ultra-low Carbon Steel in RH and Techniques for Promoting Decarburization

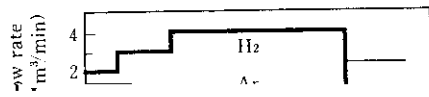
The decarburization reaction ($C + O = CO$) in the ultra-low carbon region in the RH is considered to be mainly controlled by the mass transfer of carbon in the molten steel, and can therefore be appropriately described using a first-order equation for the reaction rate of carbon as shown in Eq. (1).



P_V : pressure of vessel atmosphere
 ρ : density of molten steel (kg/m^3)
 g : acceleration of gravity (m/s^2)



depth from liquid surface to the point of measurement (m)



carbon content of $[C] \leq 10$ ppm. For this reason, a pattern was adopted in which low-vacuum treatment was started at the point when $[C]$ had been reduced to

○ conventional
▲ 1H2 injector (B)

100

