




## Achieves stable ground freezing

Registration No.	Number 00330		
Registration Date	September 13, 2022	Registration Category	Category 1 (multiple identical products such as mass-produced products)
Name (Model, etc.)	<b>【Ground freezing apparatus】</b> (1) Ground freezing machine Unit (No.US110H-3) (2) Freeze Pipes (Cut Model of Freeze Length Restricted Type and Drill - Freeze Type) (3) Hole-mouth Cut-off Device		
Location	Ichihara-shi, Chiba SEIKEN Co., Ltd. Ichihara Center		
Owner (Custodian)	SEIKEN Co., Ltd.		
Manufacturer (Company)	(1) Hitachi Ltd., Shimizu Factory (now Hitachi-Johnson Controls Air Conditioning, Inc. Shimizu Factory) (2) SEIKEN Co., Ltd., Ground Freezing Division, Construction Department (3) SEIKEN Co., Ltd., Ground Freezing Division, Construction Department		
Year Manufactured	(1) 1992 (2) In around 2000 (3) In around 2005		
Year first appeared	(1) 1966-1970 approx. (2) 1965-1981 (3) 1972-1980 approx.		
Reason For Selection	<p>This apparatus is used for ground freezing that artificially freezes the ground. Ground freezing method was independently carried out the experiment and theoretically analyzed in Japan, and was developed especially for precision civil engineering work in urban areas. It has been used for large-scale construction such as the construction of a submarine tunnel for the Tokyo Bay Aqua-Line, and is an important technology that expands safety and possibilities. (1) Mobile freezing machine unit. The construction period, cost, and quality have been significantly improved. (2) The Freeze Length Restricted Freeze Pipe solved the problem of freezing and expansion when not at intended depth. The Drill - Freeze Pipe made it possible to excavate by itself. (3) Stops water at the hole opening when burying a freezing pipe at a site where pressurized water exists.</p>		
Registration Standard	1-B (Show a uniquely Japanese scientific or technological development from an international perspective.)		
Open/Closed to Public	Closed to public		
Photo	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>(1)</p>  </div> <div style="text-align: center;"> <p>(2)</p>  </div> <div style="text-align: center;"> <p>(3)</p>  </div> </div>		
Other useful information			