

## Molten potassium nitrate KNO<sub>3</sub>



Molten potassium nitrate

Molten potassium nitrate are divided into two categories:

The service temperature of class I products is  $t = 250\text{ }^{\circ}\text{C} \sim 530\text{ }^{\circ}\text{C}$ , binary composition.

The service temperature of class II products is  $t = 160\text{ }^{\circ}\text{C} \sim 400\text{ }^{\circ}\text{C}$ . Type I is triple and type II is binary.

Specification: GB / t36376-2018

Appearance: white or slightly yellow crystal. Binary Molten Salt mixes two nitrates (40% potassium nitrate and 60% sodium nitrate) and heats them to melt into liquid to realize its heat storage function.

Inspection Items	Unit	Superior grade	First grade	Qualified grade
Potassium nitrate			$40 \pm 0.5$	
Sodium nitrate			$60 \pm 0.5$	
Cl <sup>-</sup> Chloride(as Cl)	%≤	0.01	0.03	0.05

Insoluble Matter in Water	%≤	0.03	0.05	0.1
Moisture	%≤	0.1	0.2	0.3
Fluoride	%≤	0.003	0.004	0.005
Barium ion precipitates	%≤	0.08	0.1	0.12
Nitrite	%≤	0.01	0.02	0.03
Ammonium salt	%≤	0.01	0.03	0.04
Ca	%≤		0.01	
Mg	%≤		0.001	
Ba	%≤		0.001	
Fe	%≤		0.003	
Zn	%≤		0.001	
Mn	%≤		0.001	
Cu	%≤		0.001	
Cd	%≤		0.001	
Cr	%≤		0.001	
Lead	%≤		0.001	
Decomposition temperature	%≥		575	
Melting point			210~230	
Viscosity			2.95~3.26	
Specific heat			1.30~1.50	
Thermal conductivity			0.30~0.50	

Density			1.85~1.90	
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### Application

Application: Usage: in terms of function, the basic principle is the same as that of winter heating water, which is used as heat storage medium. One of the ways of heating in winter in the north is to heat water through the heat source, and the hot water is transported to thousands of households through the water pump, which makes the winter indoor warm like spring through the heat sink.

Although the working principles of molten salt and water are the same, water is liquid at 0 °C - 100 °C and molten salt is liquid at 207 °C - 600 °C. Compared with water, molten salt with the same volume has many performance advantages such as large heat capacity, low pressure and wide temperature. At present, it has been applied to solar thermal power generation projects and heating industrial project of replacing coal with electricity.



**Production equipment:**

We have advanced equipment and the quantity of our product has reached the world-leading levels.



**Potassium nitrate production line of 170,000 tons / year using ion exchange process (high standard molten salt material) )**

