

# GJ-301

Fluorine-alkali type, high alkalinity sintered submerged arc welding flux

## Features and Advantages

- **High alkalinity:**

- The alkalinity value is relatively high (usually  $\geq 1.8$ ), which means it has strong metallurgical purification ability, can effectively desulfurize and dephosphorize, and significantly reduce the hydrogen and oxygen content in the weld.
- Direct advantages: The weld metal has extremely high purity, thus providing excellent low-temperature impact toughness and crack resistance (especially resistance to hydrogen-induced cracks and hot cracks).

- **Sintered flux:**

- It is manufactured through a high-temperature sintering process rather than smelting. This gives the flux the following advantages:
  - Good ability to transfer alloying elements: Alloying elements can be added to or compensated for in the weld metal through the flux, enabling more flexible control of chemical composition.
  - Good slag detachability: After welding, the slag will automatically curl up, making it easy to remove and greatly improving the slag cleaning efficiency.
  - Moisture absorption resistance: Compared with some smelting fluxes, sintered fluxes have lower moisture absorption, but they still need to be baked and stored according to regulations.
  - Suitable for both AC and DC use: It is applicable to both DC welding and AC welding, with a wide range of applications.

- **Excellent welding process performance:**

- Arc stability: The welding process is stable with minimal spatter.

**Beautiful weld formation:** The weld surface is smooth and flat with fine and uniform patterns. Whether it is a single-pass weld or a multi-pass weld, the forming effect is excellent.

**Pure weld metal:** There are few inclusions and low susceptibility to porosity.

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**Grain Size**

- 10-60 mesh.  
(Can be customized according to customer requirements)

**Packaging**

- 25 kg plastic valve bags, 500/1000 kg large bags.

Main constituents	SiO <sub>2</sub> +TiO <sub>2</sub>	CaO+MgO	Al <sub>2</sub> O+MnO	CaF <sub>2</sub>
	~20%	~30%	~25	~20

**Basicity of The flux**

- B//W 1.8~2.2

**Welding precautions**

- **Pre-welding drying:**
  - Drying temperature: 300°C - 350°C.
  - Holding time: 2 hours.
  - Storage: After drying, it should be placed in an incubator at 100°C - 150°C and taken as needed.
  - Exposure time: The exposure time in the air should not exceed 4 hours; otherwise, it needs to be dried again.
  - Strictly prohibited: Use flux that is damp, caked, or mixed with foreign objects.
- **Storage conditions:**
  - It should be stored in a dry and well-ventilated room with a room temperature  $\geq 15^{\circ}\text{C}$  and a relative humidity  $\leq 60\%$ .
  - The original packaging should be tightly sealed and stored off the ground and away from walls.

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## Typical application fields

- **Important steel structures:** such as bridges, high-rise buildings, gymnasiums, port machinery, etc.
- **Pressure vessels:** pressure-bearing equipment such as boilers, storage tanks, and pipelines.
- **Marine engineering and shipbuilding:** Due to its excellent low-temperature toughness, it is very suitable for structures working in extremely cold environments or with low-temperature media.
- **High-strength steel welding:** such as the welding of low-alloy high-strength steels like Q345B/C/D/E, Q390, Q420, etc.
- **Multi-pass welding and thick plate welding:** Due to its good slag detachability and porosity resistance, it performs excellently in multi-layer and multi-pass welding of thick plates.

## Mechanical properties of the weld metal, as welded:

Wire electrodes used	Yield strength ≥MPa	Tensile strength ≥MPa	Elongation 8% ≥%	Impact values ≥J (CVN)		
				+20°C	-20°C	-40°C
EL8	≥330	≥415	≥22	≥80	≥50	-
EM12K	≥400	≥490	≥22	≥80	≥60	≥27
EH14	≥470	≥550	≥22	≥80	≥60	≥34
H08Mn2MoA	≥490	≥590	≥17	≥80	≥60	≥27