

PAF (Potassium Aluminium Fluoride)



Potassium Aluminium Fluoride (PAF) is a commercial grade fused solid, inorganic salt comprising of a mixture of potassium hexa- and tetrafluoroaluminaes (K_3AlF_6 and $KAlF_4$). The material serves as an alternative to conventional fluoride salts for a variety of applications, a few of which are listed below.

Fluxes

PAF is often the primary constituent in salt fluxes for metal cleaning, either as a stand-alone addition or combined with other salts such as NaCl and KCl. The addition of fluoride enhances the general performance of the salt flux. The function of the salt flux is to separate metals from oxide and dross and to prevent incendiary burning of the aluminium, thereby maximising yields. When PAF is added to a mixture of NaCl and KCl the resulting flux is more fluid. This increased fluidity better covers the exposed molten metal and facilitates the release of metals entrapped in the dross. The active fluoride will also remove alkaline earth metals (particularly Mg but also Li and Ca) from the melt, improving metal purity. Some aluminium foundry alloy producers use PAF as their exclusive magnesium remover (in lieu of dangerous chlorine gas).

Other

In powder form, PAF is used in the manufacture of grinding wheels (filler/binder) and other abrasive products. PAF is a common additive to roofing shingles as an alkaline pH adjuster and colour additive to the coatings for roofing granules as well as aiding in flame retardant characteristics. Glass producers use PAF for opacification, or to cloud the glass giving it a milky white colour.

Physical Chemical Properties	
Appearance	Grey-white crystalline
Absorbed Moisture	1% max
Solubility in H ₂ O at 25°C	0.25g/100ml
Density	2.7g/cm ³
Melting Point	580°C

Typical Chemical Composition	
Element	wt%
K	25-30
Al	18-20
F	45-50
Fe	0.5 max
Si	0.15 max
Ti	0.1 max
Ca	0.1 max

Form & Packaging

PAF is available in the following forms:

- 1) 10-150mm (0.5-6") lump
- 2) 0-150mm (6" by down) lump
- 3) Powder

Typical Powder Size Distribution	
>1400 μ m	<1%
1000-1400 μ m	10-20%
500-1000 μ m	30-50%
53-500 μ m	40-50%
<53 μ m	<1%

Packaging as nominal 1 tonne bulk bags, shrink-wrapped on pallets.

Other forms and packaging may be available upon request.