

## Technical data sheet

# WorléeAdd FR 5000

Art.-No.: 334011-16020

Version: 01/2023

WorléeAdd FR 5000 is a halogen free flame retardant based on encapsulated phosphoric compounds.



### Technical Data:

	Value	Unit	Method
Density	approx. 1,9	g/cm <sup>3</sup>	
Bulk density	approx. 0,9	g/cm <sup>3</sup>	
pH-value	approx. 7	(Disp. 10g/l in water)	
Solubility	insoluble in water ( $\leq 0,9$ )	g/l	
Particle size, D50	20	$\mu\text{m}$	
Odor	odorless		

### Application and properties

WorléeAdd FR 5000 can be used as additive in different coating systems and polymer materials and imparts them an effective flame protection.

Due to the encapsulating of the active substance (ammonium polyphosphate) WorléeAdd FR 5000 has an extremely low water solubility. This has the advantage, that the danger of washing out of WorléeAdd FR 5000, due to environmental influences is avoided. The flame retardancy will not be affected in the long term.

Furthermore, the encapsulating offers, in comparison with uncoated ammonium polyphosphate, the following advantages:

- WorléeAdd FR 5000 can be distributed evenly in the system, so that a high flame retardant effect will be achieved and the mechanical properties are less affected
- with WorléeAdd FR 5000 a better stability in aqueous systems is achieved
- and WorléeAdd FR 5000 shows a significantly improved compatibility with a large number of binders. This has already been shown in the different experiments. Compatibility and storage stability tests were successfully performed in different binders (acrylates, alkyd emulsions, etc.)

Due to the encapsulation of ammonium polyphosphate the effectiveness as a flame retardant, for the different fields of application, will not be adversely affected in any way.

**Application:**

WorléeAdd FR 5000 can be used in various systems and is suitable for use in different application areas.

- WorléeAdd FR 5000 is insoluble in water. With many water based polymer dispersions (anionic and cationic) as well as with solvent based polymer binders stable suspensions of WorléeAdd FR 5000 can be produced. Nevertheless a compatibility testing is recommended. Please note that WorléeAdd FR 5000 should not be dispersed into aqueous binders directly, but should be dispersed in water/wetting agent first.
- Due to the encapsulation of the ammonium polyphosphate, WorléeAdd FR 5000 is practically insoluble in water and is especially suitable for the use as flame retardant in polyurethanes.
- WorléeAdd FR 5000 is used in wood and UV-curable coatings.  
The whitish intrinsic colour of WorléeAdd FR 5000 may result at high concentration > 10% in a very slight turbidity, that is for example minimal visible in the case of walnut wood.
- WorléeAdd FR 5000 is particularly suitable to provide flame retardant properties for WorléeShield insulating coatings based on WorléeCryl acrylate dispersions and functional Aerogel fillers.

Depending on intended use and requirements, combinations of WorléeAdd FR 5000 with other flame retardants are also possible.

The required application quantity depends on the used coating system and ranged between 5-20%.

WorléeAdd FR 5000 has only slightly influence on the properties of the final products. It has excellent flame-retardant properties and compared to halogenated flame retardants very low smoke emission levels and does not release any corrosive or toxic gases in case of fire.

**Note for incorporation**

To high shear forces and heat build-up (> 35°C) can destroy the encapsulation and therefore lead to coagulation.

**Recommended storage conditions**

Store under cool dry conditions at a storage temperature from + 3 to + 35 °C. When stored under proper conditions the storage stability of WorléeAdd FR 5000 in the originally closed barrel is 12 months.

**Packaging**

Bag, 25 kg net