



120 Valley Court
Oak Ridge, TN 37830
Ph: 865-482-5717
FAX: 865-482-1281
zypcoatings.com

GEL-P Binder

Water-based, Acidic pH Binder Liquid For Creating Your Own Paint

Gel-P Binder is a water-alcohol-based binder liquid that uniquely produces high hardness coatings on heating to its 350 C for around five minutes, after which Gel-P has relatively high water resistance. Gel-P also has a uniquely high ability to suspend solids (can suspend relatively high-density powders). The binder typically produces medium viscosity coatings with most materials. With a pH of 2-3 (like lemon juice), careful consideration should be used concerning whether the powder to be used is stable in an acidic medium. Other properties – long shelf life of over 12 months; used in all use-atmospheres to 1500 C.

Key Attributes

- Water-resistant after heating to 350 C
- Forms very tough phosphate-silicate bond
- High suspendability of 'filler' powders
- Forms high hardness coatings
- Good in all atmospheres, including air
- Outgassing (H_2O , CO_x) -- complete by 600 C
- Safe, water-based
- No cure needed

Ideal Uses

- Binder/Suspender
- Infiltrant

Possible Fillers

- Al_2O_3 , ZrO_2 , TiO_2 , Si_3N_4 , TiN, BN,
& pH-Acidic stable materials
- Consider eutectics

Use Notes

1. Add refractory 'filler' (<10 microns preferred)
2. Start at 50wt.% powder. Mix by rolling/shaking.
3. If too thick, add water; if too thin, add powder.
4. Re-mix by rolling or shaking.

After making paint above, clean substrate, apply paint, dry (with no cure needed), and place into use.



Specifications

Active Ingredients	>99% Al_2O_3 - P_2O_5 - SiO_2
Max Use Temperature	1500 C
Use Atmosphere	All
Fired Composition	30% Al_2O_3 – 40% P_2O_5 – 30% SiO_2
Binder Phase	Aluminum Phosphate Silicate
Hardness	High
Liquid Carrier	Water/Ethanol
Water Resistance, after 350 C	High
Ability to Suspend Solids	High
Brookfield Viscosity (cps)	300 @3/60
Specific Gravity	1.2
Shelf Life (months)	>12
Coating pH	2-3
H F R Ratings	1-1-0
Substrate Use	All
% Volatiles	70

Safety Information

- Consult SDS before use.
- Avoid breathing of spray/vapors.
- For Industrial Use only.

Sizes and colors

Gel-P Binder is a slightly-cloudy liquid.
Standard Size: 1 gallon Nalgene container.

CAUTION: DO NOT CONTACT WET COATINGS WITH MOLTEN METAL.

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