



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

YAG Binder

Yttrium Aluminium Garnet (YAG) Binder For Creating Your Own Paint

YAG Binder has a good ability to suspend solids. It yields very refractory $3Y_2O_3 \cdot 5Al_2O_3$ as the phase that bonds the 'filler' solids added to the binder. The melting point is 1940 C. With a pH-Acidic (3-4) range, this binder can be used with powder solids that are stable in acidic medium. YAG Binder has a long shelf life of over 12 months and is usable in all atmospheres to 1900 C.

Key Attributes

- Forms very stable Yttrium Aluminate bond
- Good Suspendability of 'filler' powders
- Forms low-to-medium hardness coatings
- Good in all atmospheres, including air
- Minimal outgassing -- complete by 500 C
- Safe, water-based
- No cure needed

Ideal Uses

- Binder/Suspender
- Infiltrant
- Sealer
- Rigidizer

Possible Fillers

- Al_2O_3 , ZrO_2 , CeO_2 , SiC, Si_3N_4 , Y-SiAlON, BN, TiN, & many more
- 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% Y_2O_3 , Al_2O_3 |
| Max Use Temperature | 1900 C |
| Use Atmosphere | All |
| Fired Composition | $3Y_2O_3 \cdot 5Al_2O_3$ |
| Binder Phase | Yttrium Aluminate |
| Hardness | Low-Medium |
| Liquid Carrier | Water |
| Water Resistance (after drying only) | Low |
| Ability to Suspend Solids | High |
| Brookfield Viscosity (cps) | 500 @3/60 |
| Specific Gravity | 1.09 |
| Shelf Life (months) | >12 |
| Coating pH | 3-4 |
| H F R Ratings | 1-0-0 |
| Substrate Use | All |
| % Volatiles | 87 |

Safety Information

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

Sizes and colors

YAG Binder is white, milky liquid.
 Standard Size: 1 gallon and 1 quart Nalgene containers.

CAUTION: DO NOT CONTACT WET COATINGS WITH MOLTEN METAL.

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