Chemcraft®

A Great Finish is Only the Beginning

Troubleshooting Guide

Solutions to Common Finishing Problems

AkzoNobel

Contents

Contents

Adhesion – Intercoat

Problem

- Delamination between coats
- Whitening of film between coats

Solution

- Ensure correct sanding between coats
- Topcoat within recommended time limit after sanding
- Allow correct dry time of sealer coats
- Use correct finishing system
- Ensure no contamination on previous coat
- Apply a wet coat material
- Do not fog or mist coating to apply thinner film builds

Adhesion – Stain

Problem

- Delamination to stain
- Whitening of film between coats

Solution

- Reduce application of stain
- Ensure sufficient wiping of stain
- Allow correct dry time of stain
- Dark stains should be obtained by using toners before stain application
- Avoid heavy shading
- Make sure to use the correct finishing system (sealer/topcoat) to match stain.
- Apply wet coat of sealer or topcoat
- Do not fog or mist coating to apply thinner film builds

Adhesion - Substrate

Problem

- Removal of film to substrate
- Delamination to substrate when impacted

Solution

- Ensure correct sanding of substrate
- Use correct finishing system to match topcoat with primer used
- Ensure no contamination on substrate
- Apply wet coat of material
- Do not fog or mist coating to apply thinner film builds
- Closed grain hardwoods should be well sanded before use
- Higher solids finishes need a better wood profile to anchor to than low solids
- Ensure sand paper is not worn

Air Entrapment / Pinholing

Problem

- Bubbles from pores in the wood
- Air entrapment from preparation of paint
- Air entrapment from application
- Blistering from drying techniques
- Topcoat attacking previous coat

Solution

- Use defoamer
- Use slower solvent balance
- Change airflow during drying, check for drafts
- Reduce air pressure during application
- Spray thin wash coat as first coat
- Ensure adequate flash off before oven
- Reduce viscosity
- Bring lacquer to room temperature
- Use correct thinner
- Use weakest solvent for previous coat to avoid blistering
- Reduce recirculation speed
- Reduce film thickness

Bénard Cells

Problem

- Cell pattern in finish
- Color and surface irregularities

Solution

- Add dispersant
- Add silicone additive to reduce surface tension
- Increase application viscosity
- Lower application thickness
- Add thixotrope or thickener

Bleeding

Problem

- Color migration from coated substrate
- Color in sanding dust
- Colored film on surface

Solution

- Avoid bleeding dyes and pigments
- Use vinyl sealer to seal color
- Change from acid catalyzed material

Blisters / Pinholes

Problem

- Micro bubbles or voids in coating surface
- Unfilled pores on open grain wood / veneer

Solution

- Use a slower thinner if necessary
- Reduce board temperature and minimize applied film thickness
- Check viscosity of the finish
- Ensure that the substrate is not porous
- For open-grain woods use a filler or different primer

Blocking

Problem

- Sticking together of panels when dry

Solution

- Reduce film build applied
- Increase or ensure recommended dry times are followed
- Ensure ovens are at the correct temperature
- Increase or ensure correct airflow during dry
- Ensure correct temperature of substrate
- Decrease or ensure correct temperatures at stacking

Blooming

Problem

- Hazy deposit on film
- Oily or wax-like substance on surface
- Reduced gloss
- Mottled or non-uniform surface

Solution

- Adjust catalyst level – over–catalyzation
- Do not use stearated materials such as lacquers and certain polyesters under acid catalyzed coatings
  Check formula for incompatibility
- Check substrate for contamination

Blushing

Problem

- Whitening of surface
- Lowering of gloss

Solution

- Reduce humidity
- Use richer thinner
- Check water level in equipment
- Warm lacquer to room temperature
- Increase temperature of application area
- Slow dry time
- Dry waterborne stains or sealers

Brittleness

Problem

- Poor coin scratch
- Delamination of film when impacted

Solution

- Ensure that brittleness is not lack of adhesion
- Check with representative
- If a catalyzed system, check ratio

Brown Spots

Problem

- Brown spots in film

Solution

- Clean air lines of oil contamination
- Drain or repair oil separator

Bumps and Sinks

Problem

- Uneven surface appearance
- LOW Depth of Image (D.O.I.)

Solution

- Add silicone flow additive
- Add thixotrope

Cold Check

Problem

- Cracks in finish

Solution

- Decrease dry film build
- Ensure minimum room temperature during cure
- Use only freshly catalyzed material
- Ensure correct catalyzation
- Ensure profiles are sanded to reduce sharp angles

Cracking

Problem

- Cracks and checks in film

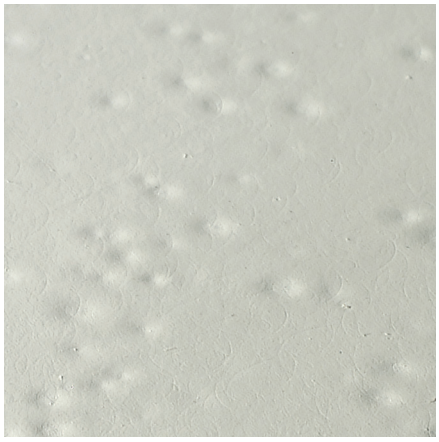
Solution

- Applied coating is too thick. Use wet mil gauge during application (Refer to Product Information Sheet)
- Reduce the moisture ratio
- Check the mixing ratio
- Check suitability of surface and coating
- Check the drying and storage conditions
- Check suitability of surface and coating

Cratering

Problem

- Depressions in finish with raised edges and material at center



Solution

- Remove source of contamination
- Clean substrate before application
- Clean equipment before application
- Filter material
- Clean air system and ventilation control
- Addition of silicone flow agent

Crawling

Problem

- Formation of beads, islands, craters or pinholes
- Poor wetting of substrate

Solution

- Clean substrate before application
- Ensure sanding before application
- Addition of silicone flow agent

Discoloration

Problem

- Change in color of finished parts
- Yellowing of film

Solution

- Check age of coating
- Check contamination from drum liner
- Check iron or aluminum contamination from application equipment
- Check for presence of foreign vapors or fumes
- Check to ensure presence of UVA, if required
- Check to ensure material not stored at excessive heat
- Check for tannin bleed

Dry

Problem

- Wet film
- Soft film

Solution

- Decrease humidity during application
- Increase temperature in drying and curing area
- Clean wax or oil contamination from substrate
- Mix catalyst and thinner well into material
- Ensure correct ratio of catalyst
- Reduce / ensure correct addition of retarder solvent

Fat Edges and Picture Framing

Problem

- Paint build-up on edges
- Poor edge coverage

Solution

- Addition of thixotrope
- Addition of silicone flow agent
- Faster solvent balance
- Lower viscosity
- Ensure profiles are sanded to remove sharp edges

Fish Eyes

Problem

- Depressions in finish with raised edges and uniform material at center
- Undispersed droplets in paint

Solution

- Remove source of contamination
- Remove source of incompatibility
- Clean substrate before application
- Clean equipment before application
- Clean air system and ventilation control
- Addition of silicone flow agent

Floating

Problem

- Mottled, blotchy or streaked appearance
- Separation and uneven distribution of pigment
- Result of Bénard cell formation

Solution

- Increase application viscosity
- Lower application thickness
- Add thixotrope or thickener
- Add dispersant
- Add silicone additive to reduce surface tension

Flooding

Problem

- Uniform color change
- Surface enrichment of one or more pigments
- Different color on disturbed surface/ Rub-up

Solution

- Reduce film thickness
- Raise viscosity of coating
- Speed drying

Gloss Variation

Problem

- Uneven gloss areas
- Incorrect / unexpected gloss
- Flat or glossy spots

Solution

- Ensure correct drying or oven temperatures
- Ensure correct film build
- Apply seal coat to eliminate absorbent areas on substrate
- Reduce solvent strength to reduce exudation of resins from wood
- Ensure clean substrate
- Addition of silicone flow agent

Grey Pores

Problem

- Grey areas in deep pores
- Poor cleaning of sanding dust from pores
- Poor wetting of pores

Solution

- Blow out sanding dust from pores on sanded panels
- Reduce viscosity of sealer
- Add non-contaminating silicone to improve wetting of sealer
- Change sealer to improve wetting and shrink-back
- Change to urethane sealer

Haze

Problem

- Dulling of finished surface
- Exudation to surface
- Fine solvent pops
- Microvoids
- Fine Bénard cells

Solution

- Use correct thinner
- Check current catalyzation
- Check the dry of previous coat
- Stir material to ensure uniform product
- Use retarder solvent

Hiding

Problem

- Poor coverage
- Show-through of dark lines at edges of profiles

Solution

- Reduce amount of thinner in material
- Mix material thoroughly before use
- Increase / ensure correct film build
- Sand sharp corners of profiles
- Increase speed of solvent balance

Lifting

Problem

- Wrinkling of the finish
- Unevenness of the ripple effect on surface

Solution

- Ensure correct system
- Do not use weaker films under stronger
- Apply thinner coat of topcoat
- Apply heavier coat of sealer
- Use weaker reducer
- Ensure correct air movement and dry
- Allow longer dry on previous coat
- Ensure correct catalyzation
- Use freshly catalyzed materials

Marring

Problem

- Surface damage when scratched

Solution

- Use freshly catalyzed material
- Increase dry and cure of finish
- Increase cure area to room temperature
- Allow 14 days to obtain full cure with acid cure materials
- Add silicone anti-mar additive
- Follow manufacturers recommended shelf life
- Add coalescing solvent to waterborne material to ensure good film formation

Mud Cracking

Problem

- Fine cracks in surface of waterborne finish

Solution

- Increase temperature of application area
- Increase drying temperature
- Add coalescing solvent under agitation
- Increase substrate temperature

Orange Peel

Problem

- Surface bumpiness or waviness
- Orange peel effect
- Poor leveling

Solution

- Check and / or lower viscosity
- Apply correct or thicker film build
- Reduce dry spray or overspray
- Increase atomizing air
- Reduce fluid pressure
- Check correct air cap
- Use retarder solvent or rich thinner
- Eliminate excessive air movement
- Add silicone flow agent
- Apply even stroke with spray gun at the correct distance from the substrate

Printing

Problem

- Marks in finish after stacking

Solution

- Increase dry time
- Use freshly catalyzed materials
- Do not dry or cure in cool area
- Ensure correct catalyzation

Rub Up

Problem

- Color change on disturbed area of finish
- Flocculation of pigments

Solution

- Reduce film thickness
- Raise viscosity
- Add thixotrope or thickener
- Speed drying
- Add dispersant
- Add silicone additive to reduce surface tension

Sagging

Problem

- Gravity driven flow on vertical surfaces

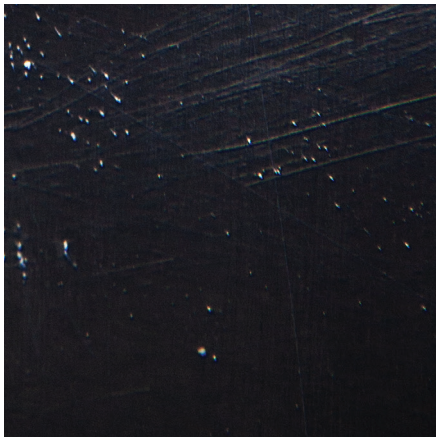
Solution

- Speed up solvent balance
- Control or reduce application of material
- Increase application viscosity
- Correct spray application, avoid overlap, use correct gun angle, speed gun movement
- Apply several thinner coats
- Reduce drafts and application in direct sunlight
- Increase temperature of application area
- Reduce application nozzle size
- Reduce fluid pressure

Seeds

Problem

- Small granules in finish
- Undispersed or flocculated pigments
- Dirt
- Resin gel particles



Solution

- Check to confirm dirt and not small air bubbles
- Clean environment
- Clean application equipment
- Filter material
- Use correct thinner
- Store and apply material at room temperature

Separation

Problem

- Partial precipitation from solution
- Syneresis or phasing of material
- Pigment settling

Solution

- Change solvent for reduction
- Store at room temperature
- Ensure good adhesion
- Lower amount of reduction
- Slower addition of reducer
- Keep container sealed to reduce oxidation

Silking

Problem

- Parallel lines of irregularities in finish
- Floating problem
- Phase separation
- Specialized Bénard cells
- Incompatibility

Solution

- Add dispersant
- Use silicone additive
- Increase application viscosity
- Add thixotrope or thickener

Skinning

Problem

- Skin on surface of paint
- Gummy material in bottom of paint

Solution

- Keep containers closed
- Check pot-life
- Add water / solvent coverage to material

Solvent Popping / Pinholing

Problem

- Formation of holes, craters, dimples and volcano-like bumps
- Visual appearance of seeds
- Visual appearance of low gloss

Solution

- Increase flash time
- Use of retarder solvent
- Use of slower solvent blend

Solvent Trap

Problem

- Cracking / crazing of finish after unpacking
- Glossy or flat spot after stacking

Solution

- Decrease or ensure correct film application
- Ensure correct air movement and dry times
- Do not store in cold environment before complete cure
- Increase cure before stacking or packing
- Ensure correct catalyzation

Tearing

Problem

- Large cracks in waterborne finish
- Uneven drying of the surface before the body of the paint film
- Poor through cure in waterborne materials

Solution

- Decrease surface heat to finish
- Increase substrate temperature

Telegraphing

Problem

- Structural or surface features revealed in finish
- Show-through of fingerprints, water spots or sanding marks

Solution

- Addition of silicone flow agent
- Increase viscosity of coating
- Addition of thixotrope
- Faster solvent balance

White Spots

Problem

- White spots or contamination in film

Solution

- Ensure flatting agent is completely mixed before application
- Filter material before use
- Check water separator