



# FREQUENTLY ASKED QUESTIONS

## FAQ Answers to the most often asked questions about MCU-Coatings® performance:

### Performance

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### **1. How are MCU-Coatings paints different from other moisture cure coatings?**

Moisture-cure coatings are well known and generic versions have been made, on a limited basis, for over thirty years, essentially unchanged and based upon the same few resins commercially available. Due to the complex production requirements, their use has remained limited. The resins, stabilizing methods, additives, and synergistic pigment combinations that we use are all unique to MCU-Coatings and are proprietary. It is our successful 25 year track record and improved performance level that has brought on the popularity of moisture-cure coatings and spawned the need for public and private agency, generic second source off-sets. It is this requirement for multiple sources that has forced many specifiers to approve and manufacturers to propose untested, newly-designed offsets with carbon copy data sheets and no track records. These products are based upon the same technology and resins that have been offered before, and usually exhibit some or all of the inherent problems experienced in the 1970's: poor can stability, erratic inter-coat adhesion, limited corrosion resistance or durability, bubbling in heavy film, poor application properties and lack of field performance data or product understanding. MCU-Coatings' products are simply more refined, the result of more than 45 years of research with the benefit of over US\$100 million in sales. MCU-Coatings products are perhaps the most tested product in the coatings market and have protected over one billion m<sup>2</sup> of steel and concrete worldwide.

### **2. Do MCU-Coatings system outperform industry standards for inorganic zinc, epoxy, polyurethane systems?**

MCU-Coatings have been sold worldwide on thousands of major projects. Before using or specifying, every governmental or corporate agency, state or federal materials lab, engineering firm, or coating consultant has required conclusive laboratory and field tests documenting the advantages. MCU-Coatings products have been tested more than any other coating in the history of this industry. Even with conclusive lab tests and overwhelming field use, it was still difficult to penetrate certain markets because of a natural bias against new products from a non-traditional supplier, especially with our very different performance claims. Every laboratory test and field evaluation shows our MCU-coating systems exceed industry expectations and they outperform the best organic / inorganic zinc or epoxy mastic primers and epoxy or polyurethane topcoats. Combining the performance and obvious application advantages it is little wonder that MCU-Coatings' products increasingly popular and cost effective with infrastructure owners and experienced contractors.

### **3. How does the MCU-Coatings systems compare with older systems like red lead, vinyl and chlorinated rubber?**

MCU-Coatings combines, for the first time, surface tolerance and ease of application with true high-performance. This is our strength. Tests consistently show MCU-Coatings' systems to be more surface tolerant and better performing than red lead primer systems, with easier application and faster immersion times than vinyl's and with better overcoating performance than alkyds. Our high solids MCU-Coatings meet every VOC and environmental requirement and not only replace these older standards, but actually make them less desirable even if they could be used. Our 25 year successful record of replacing vinyl's on major hydro, marine, and specialty projects is well known, and our overcoating track record on over three thousand bridges, hundreds of major hydro, marine, wastewater, offshore, petrochemical, and military projects proves the advantages and appropriateness for replacing alkyd and chlorinated rubber coatings for maintenance painting.

### **4. How did MCU-Coatings perform in salt spray testing?**

Most MCU-Coatings products have withstood 10,000 hours of salt spray testing as a stand-alone system without any evidence of under-creep corrosion.

### **5. Why does the MCU-Coatings system outperform everything else on lead overcoating?**

In simplest terms, MCU-Coatings systems have all of the properties that an overcoating system needs to perform well, including flexibility, breathability, adhesion, no-shrink, and synergy with the old systems being overcoated, without causing embrittlement or delamination. Additionally, application advantages make coating under field conditions easier and quicker, which is opposite of traditional plural-component technologies. MCU-Coatings developed and formulated its systems specifically for overcoating, which is why they work.

### **6. Why do the MCU-Coatings paints not peel off old coatings, like epoxies do?**

Epoxies are brittle, and upon curing in certain conditions (like very cold environments or with heavy films), they tend to pop off the old coatings within one to three years. MCU-Coatings have dramatically better flexibility to conform to different adhesion and cohesion coefficients. The coatings are specifically formulated with precise additives, and with the synergistic use of micaceous iron oxide in every coat. Our track record on over 3000 bridges, with all manner of application challenges, in climates ranging from Alaska and Canada to Hawaii, the Middle East and South East Asia, proves our claims beyond a doubt.

### **7. Why should I specify MIO in the topcoat? What are the advantages?**

MIO has well-documented attributes that contribute to the overall performance of protective coatings, and has been demonstrated to improve coatings longevity by a factor of 7-8 times. Basic advantages include: (1) barrier properties; (2) UV shielding properties; (3) film reinforcement properties; (4) better abrasion resistance; (5) film-building properties over edges and sharp corners; (6) better inter-coat adhesion; and (7) infinite recoatability.

### **8. Why does MCU-Miozinc outperform inorganic zincs?**

MCU-Miozinc delivers more kg of zinc per square meter than inorganic zincs. More importantly, MCU-Miozinc is pore free and dense. All inorganic zincs are porous, much like Swiss cheese. This always misleads magnetic dry film gauge readings. At the same dry film readings, inorganic zincs provide less zinc, which depletes faster and does not perform as well when overcoated. Their porous nature also requires a tie coat or intermediate coat to fill in the voids.

### **9. How does MCU-Miozinc perform compared to MCU-Zinc?**

Field performance has proven that the performance of MCU-Miozinc performs almost as well as MCU-Zinc. MCU-Miozinc is however cheaper and has a higher surface tolerance.

### **10. Will MCU-Miozinc adhere to old coatings like old red leads, vinyl's, chlorinated rubber and epoxy?**

Yes, which is why MCU-Miozinc is so popular and why our overcoat systems so successful. MCU-Miozinc is more surface tolerant than epoxy mastics, and it has better corrosion resistance. With MCU-Miozinc you are also able to spot prime old coatings when overcoating. Some contractors even use MCU-Miozinc as a complete overcoat primer, coating both bare steel, which has been spot cleaned and the entire old coating. This is common, and it allows a simple two coat overcoat system.

### **11. What is so special about MCU-Miotopcoat?**

Our aliphatic resin used in MCU-Miotopcoat is of automotive quality with regard to gloss and colour retention; however, when we pigment it with micaceous iron oxide it makes it the most durable topcoat in our industry. The MIO reinforces the film, preventing cracking, crazing and blistering. It also shields the resin as surface erosion occurs and make the topcoat extremely durable in high sun exposures. QUV tests show amazing colour stability. The MIO prevents the usual decay process that occurs with acrylic polyurethane's and most importantly, the MCU-Miotopcoat is a perfect surface to repaint years later and does not need to be removed.

### **12. What are the advantages of MCU-Miomastic?**

The practical advantage of the system is that our coatings can be applied in tanks without expensive dehumidification equipment, and the coatings can be exposed to immersion or condensate within minutes. Another real advantage is that when used with MCU-Miozinc primer under the MCU-Miomastic there will be far better corrosion resistance. This is the only system in the world which has the advantage of a zinc primer, and that zinc primer is more surface tolerant than any epoxy.

### **13. Is MCU-Miozinc recommended for immersion?**

Yes, but always with a topcoat. MCU-Miozinc is approved under MCU-Miomastic for potable water, and both are recommended for fresh, salt water, and sewage treatment exposures with a topcoat.

### **14. Why do MCU-Coatings' systems last longer than epoxies on equipment and machinery exposed to moisture?**

When you compare the impedance or capacitance of coatings you will see a high difference between MCU-Coatings' paints and epoxies. In fact it is usually 100 times greater. This conductivity, or lack of conductivity when comparing wet versus dry films, is one explanation given by many experts. The fact is that these coats simply last a lot longer, and can be applied successfully in damp conditions.

### **15. What makes MCU-Coatings system so much better than epoxy systems?**

Besides the basic chemical differences of the resins themselves, which makes MCU-Coatings more durable, there is the obvious fact that MCU-Coatings always recommends priming steel surfaces with its zinc primers. No corrosion or coatings expert can argue that an epoxy mastic primer equals the performance of a zinc primer. MCU-Coatings has also made zinc primers easier to use and more surface tolerant than any epoxy.

### **16. If this technology is so great why doesn't everyone make it?**

Many have tried, and now that we have made it work, other manufacturers are trying to develop their own moisture cure technologies. Moisture-cure is however very complex, but the biggest obstacle is the manufacturing techniques.

### **17. Why are MCU-Coatings products so much better than coal tar epoxy or modified epoxy on pilings, locks, gates, penstocks and marine exposures?**

Simply put, MCU-Coatings last longer. No other coating in the world can offer 20,000 hours on ASTM salt spray testing and MCU-Coatings' paints can be applied in the high humidity and damp conditions that completely hinder the application of epoxies. MCU-Coatings are more surface tolerant, weather better, have better impact resistance, are more resistant to undercutting and are very flexible. They also do not embrittle over time like most traditional coating systems. Moisture-cure urethanes, or more correctly polyureas, retain their flexibility better than any polyurethane or epoxy.

### **18. Does MCU-Miomastic perform well in UV exposure?**

Yes. There will be some initial chalking; however, the 1.3 to 2.2 kg of micaceous iron oxide in the film prevents further degradation. This is why it is extremely important to be cautious of look-alike off-sets. Only MCU-Coatings uses the high quality MIO pigments we have sourced. MCU-Miomastic does not embrittle like epoxies when exposed to UV light, and is recommended for this exposure.

### **19. Why is MCU-Miomastic better than coal tar epoxy?**

Please look up our MCU-Miomastic data sheet and the "Critical Comparison" accompanying it. MCU-Miomastic is superior to epoxy tar in every way.

### **20. Why should I use MCU-Topcoat instead of regular marine enamel or epoxy topcoats?**

MCU-Topcoat is an aliphatic urethane. The gloss and colour resistance, impact abrasion resistance and chemical resistance are all far better. MCU-Coatings has made using aliphatic topcoats practical as they have no humidity, dewpoint, or temperature application restrictions.

### **21. What are the advantages of the MCU-Coatings in cargo holds?**

Many. You cannot find a better coating. The MCU-Coatings are more flexible and more abrasion resistant. They are far more impact resistant than epoxies and longer lasting. They do not become brittle or crack with the ships flexing. Most importantly you can use MCU-Miozinc as a spot or full primer. It is more surface tolerant than an epoxy and the corrosion resistance is better. Every performance and application property is superior to the best epoxy systems and the MCU-Coatings paints cure much quicker.

### **22. Why should I use MCU-Coatings on floors instead of epoxy?**

The most common use of moisture cure coatings in the world is on concrete and wooden floors. The advantages are better colour and gloss retention, better abrasion resistance and better adhesion. Moisture cure coatings provide the most consistent performance on concrete due to their ability to tolerate moisture during application.

### **23. Why should I consider MCU-Coatings on large projects?**

Large projects like stadiums, chemical plants and bridges cannot be painted in one season with traditional coatings because of weather limitations. With MCU-Coatings you can however paint all year round without weather related delays. You will also avoid litigation which can occur on large projects which are invariably delayed by painting conditions.

Asset owner often use cheap paints because they only have to hand over the asset at the completion of their building warranties. Even so, with MCU-Coatings it is possible to win bids because of the significant application savings.

## Preparation

### 24. Why are MCU-Coatings so good with hydro blasting?

MCU-Coatings' moisture-cure technology creates coatings that are more tolerant of moisture than any other coating system. In most cases, the surface can be dried with a towel or a blower immediately before application. Other coatings cannot be applied to moist or damp steel, and do not perform well over rust bloom. MCU-Coatings can even be applied with little or no dehumidification equipment in tanks.

### 25. Can I use a hand or power tool clean with MCU-Miozinc?

MCU-Miozinc is far more surface tolerant than inorganic zincs. MCU-Miozinc will adhere to old coatings and surfaces with little or no surface profile. MCU-Miozinc can be applied over a surface that meets the SSPC-SP3 (ISO St 3) power tool cleaning specification and even (ISO St 2) SP2 hand-tool surfaces. MCU-Coatings also manufactures MCU-Aluprime, the most surface tolerant, high-performance primer available today.

### 26. Do I need a profile on the steel?

Yes. While MCU-Coatings' technology creates excellent adhesion, proper surface preparation is always recommended to guarantee the best outcomes. A 25 to 50µm angular profile is however good enough. Both MCU-Miozinc and MCU-Aluprime have demonstrated impressive adhesion over mill scale or smooth surfaces, where only solvent wiping was allowed. Our MCU-Aluprime, MCU-Mastic, MCU-Miozinc and MCU-Miotopcoat can even be applied directly onto new galvanised surfaces without a profile. An acid etch or sweep blast is desirable, but good results have been attained with only a solvent wipe.

### 27. Can I paint wet steel?

In extreme cases it is possible and done often, however we prefer a normal, dry surface. MCU-Coatings are very tolerant of surface moisture, but typically there should be no visible moisture on the substrate. Typically, a dry towel is all that is necessary. When using MCU-Quickcure, the coating becomes less tolerant of surface moisture.

### 28. How fast do these coatings cure with MCU-QuickCure?

With MCU-QuickCure, recoat or overcoat times can be cut to as short as 20-30 minutes. A three-coat system can be applied in as little as one hour. Even in very cold temperatures, cure times can be as little as one hour. There is no loss of performance using MCU-QuickCure. This can revolutionize our industry.

### 29. Are there any recoat windows?

Most MCU-Coatings have no outer recoat windows, including MCU-Miomastic, MCU-Topcoat and MCU-Miotopcoat. These coatings and many others can be overcoated without abrading the surface for the life of the coating. .

### 30. Can I paint over galvanised surfaces?

Yes. MCU-Coatings extends the lifetime of a galvanised system more than twofold. The galvanised surface should be solvent wiped and lightly scuffed. Additionally, the zinc primers of MCU-Coatings qualify as a cold galvanizing product to repair hot-dipped galvanised structures that have been damaged during installation.

New galvanised surfaces can be overcoated with one coat of MCU-Miotopcoat or MCU-Alutopcoat direct to the metal.

### 31. Is the humidity ever too low?

No. MCU-Coatings will cure normally in relative humidity as low as 6%, although cure times will extend slightly when the humidity below 30% in low temperatures. When the humidity is lower than 6%, or at temperatures below 0°C, the addition of MCU-Quickcure will ensure a rapid and proper cure.

### 32. Can MCU-Miomastic be applied over old coal tar epoxy?

Yes, MCU-Miomastic will adhere to old coal tar epoxy, and even new applications can be overcoated without poor adhesion. In overcoat situations it is not necessary to remove sound coal tar epoxy that has good adhesion with no corrosion.

### 33. How do I know I am getting a real offset for MCU-Coatings if I allow other products on an "or equal" specification?

You cannot, but you can use our generic performance specifications which clearly define the requirements. Follow our specification, but also use these tips: 1. Do not judge an offset by the data sheet. Unfortunately our data sheets, and much of our literature, is not protected by copyrights. Many other supplier has copied our data sheets. You will see the similarity. In the case of one supplier, we actually wrote their data sheets when we private-labelled for them. They are not obligated to make the same product themselves. 2. Always demand independent lab proof of the MIO content. No other supplier has yet put the MIO content on their data sheets. There is no benefit of MIO unless there is at least 1,3 kg per litre. Most offsets try and save money by reducing the MIO content. 3. Be cautious of claims about MIO quality. Some suppliers make outrageous claims of MIO performance. Remember, MCU-Coatings is the world's largest user and our quality is never compromised. 4. Always included a sentence in your specification that alternate products must be approved 5-7 days prior to bid date and do not make an exception. 5. Always require two years field references with the exact system that is proposed. 6. Do not accept a substitute zinc primer that has less zinc than MCU-Coatings zinc primers and make sure you know how they are measuring their zinc content.

### 34. What colours are available in MCU-Miotopcoat?

Most darker colours are available, white, off white, safety colours and very clean colours are not possible. The MIO is a grey black colour. When used at 1,3 kg per litre, or more in our topcoats, it mutes or greys off the colour.

### 35. How do I choose between MCU-Miotopcoat and MCU-Topcoat? Which topcoat should be used in which situation?

MCU-Miotopcoat is low gloss and can show a tripping effect on a large flat surface like a tank. It is best to use MCU-Miotopcoat on structural steel, like bridges, and use MCU-Topcoat on tanks and ship hull surfaces. Also MCU-Miotopcoat cannot be made in white, off-white, or safety colours due to the muting effect of the MIO.

### 36. Can I apply these coatings in the splash zone?

Yes. The ability to tolerate salt and take quick immersion within hours is one of the most famous features with our coatings.

### 37. When should I use MCU-QuickCure?

Anytime that a rapid cure is required. With MCU-Quickcure a three coat system can be applied in 1-2 hours. The only caution is that MCU-Quickcure affects the coating's ability to adhere to damp surfaces. You can however, use MCU-QuickCure in 99% relative humidity if the surface is dry.

### 38. Does MCU-QuickCure degrade or change the coatings' performance?

No. In repeated tests MCU-Quickcure has shown that it improves the coating. The noted improvements are less CO2 is produced so there is less bubbling in heavy films, better chemical resistance and better adhesion.

### 39. Can I repair MCU-Miomastic without the special surface preparation that is required for epoxies?

Yes, MCU-Miomastic is indefinitely recoatable and can even be used to repair or overcoat coal tar epoxy.

**40. I am painting my structures white. What intermediate can I use?**

Use MCU-Miomastic light grey or MCU-Miomastic white. These are always our recommendation for systems using white topcoats.

**41. Will MCU-Miomastic perform as well as MCU-Mastic?**

Yes, both will give the same results. The MIO in MCU-Mastic has its main advantage for covering sharp edges and threads. When painting

flat surfaces or if a stripe coat is used on edges both will perform equally.

**42. Can I use MCU-Coatings in food storage areas?**

Yes. All of the MCU-Coatings systems, including MCU-Aluprime, MCU-Alutopcoat, MCU-Miozinc, MCU-Topcoat and others are approved for incidental and full food contact and MCU-Miozinc and MCU-Miomastic are approved for potable water use in Europe.

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## Safety

**43. Why are MCU-Coatings lower in isocyanate monomer than two-component polyurethanes?**

MCU-Coatings' isocyanates are placed into in solution and reacted during the manufacturing phase, leaving no measurable traces of isocyanate monomers in our aliphatic topcoats, and only the slightest of traces in our aromatic primers and intermediate coats. Laboratory test have shown that there are no detectable isocyanates as a consequence of spraying MCU-Coatings! MCU-Coatings topcoats (MCU-Topcoat and MCU-Miotopcoat) are based on a proprietary resin blend that have extremely low (i.e. immeasurable) levels of aliphatic isocyanate monomer that are not detectable with hand-operated instruments immediately after spraying. In fact it is only possible to find miniscule traces of isocyanate monomer in the resins because the isocyanates are in solution and effectively reacted during the manufacturing process. Additionally, MCU-Coatings employs a different (and far less harmful) isocyanate blend than your typical two-part polyurethanes, which is much less volatile than the commonly used HDI isocyanates found in nearly all two-part products. As a result of the isocyanate reactions during their manufacture phase there is no measurable residual monomer left in our finished coatings, which is also due to our coatings have very low levels of TDI and MDI monomer. All of MCU-Coatings paints applied by brush or roller operations also have no possible measurable isocyanate monomer because the miniscule residual traces are in solution and never reaches the airborne phase.

**44. Is there any hazard of isocyanate if I use your product?**

First of all, if our products are applied by brush and roller it is impossible to have any isocyanate in the airborne phase. There is also no hazard of isocyanate from the applied film because once reacted the isocyanates break down into their constituent elements (R-N=C=O). The coatings cannot emit any hazardous substance other

than solvent. Precautions must be taken for organic solvent. This can be done with air movement equipment. There is no residual odour after the solvent has evaporated. This can take 4-8 hours.

**45. Are MCU-Coatings safe for skin contact?**

Yes, once cured all MCU-Coatings products are approved for incidental and full food contact. These are chemical resistant coatings. Polyurethane's are inert once cured. In wet or uncured state, the molecular structure of MCU-Coatings is too small to pass through the skin. As with any solvent-based material, precaution should be taken to avoid exceeding TLV.

Note: MCU-Coatings paints will not wash off, and so gloves are always recommended. Please refer to material safety data sheets on each product for specific requirements.

**46. Is there any concern about zinc in MCU-Miozinc - similar to the concern for lead?**

No, Zinc is an essential element that every human need to be healthy. There are no restrictions against zinc coatings. In fact MCU-Miozinc and other zinc primers are now approved for potable water. The only concern for zinc is against breathing large quantities of spray dust during painting and breathing excessive fumes when welding zinc primers. These concerns, of course, are eliminated with the use of a proper respirator.

**47. Are MCU-Coatings safe to use around sensitive fisheries?**

MCU-Miozinc is the only zinc primer to ever pass the Canadian fish toxicity testing. The unique physical properties of the MCU-Coatings products make them safe for use in these areas in the event of spill or other exposures to land or water. MCU-Coatings have frequently been used to coat ponds for penguins, killer whales and general marine life in theme parks.