"It Can Be Done" With Johnson®

DEOXALUMINITE™ WELD-THROUGH PRIMER

Ever since WWII many companies including fortune 500 firms, and international corporations have used Deoxaluminite™. "Deox," for short, is the original, high-aluminum content, weld-through, or weldable primer that meets existing specifications required for many certified applications.

"Deox" is also used generally to inhibit rust, corrosion and dirt, along with the resulting clean-up that would otherwise be necessary at job sites, or in the shop, whenever parts must be stored for a period of time before final assembly and welding can begin.

"Deox," with its fine aluminum powder and proprietary binder system, has remained for over 65 years, the most reliable rust preventing, weld-through primer to have undergone both laboratory and field testing. This unique, well-proven formula has been imitated by its competetors, but it has never been equaled!

When properly applied to clean, dry surfaces, Deoxaluminite™ provides a uniform coating thickness that dries quickly, without running or separating, while enabling nearly immediate protection from the elements for new, or freshly cleaned metals during intermediate storage. "Deox" can be applied several ways to entire surfaces, or just the weld areas, and it doesn't need to be removed before, or after welding because its formula is compatible with other "solvent-based" protective paints and coatings.

Johnson's Comparative Dip Test - 2017

JOHNSON MANUFACTURING COMPANY • PRINCETON, IA • BUFFALO, NY

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Welding through Johnson's Deoxaluminite,™ the original, aluminum-based "deporosite" primer, has shown to produce welds of the highest quality, in most cases equaling similar welds using newly cleaned bare metal surfaces! This is largely due to (a) its proprietary binder ingredients that hold onto (b) its ultra-fine aluminum particles just long enough to deoxidize and "refine" the molten weld pool, until it vaporizes a split second before fusion actually occurs.

KRAUSE WELDING - CLINTON, IA

The element aluminum (Al) becomes molten at ~1,200 degrees F, however it does not actually begin to boil, or fume away until ~4,500 degrees F. Welding temperatures for steel usually exceed 5,000 degrees F, but its alloying temperatures are even higher and take much longer periods of time. This could explain why elemental aluminum doesn't show up in the nominal compositions for iron alloys, either as an admixture, intentional addition, or as an unintended naturally occuring impurity at trace levels. Even though Al doesn't survive a lenghty alloying process, we believe it's entirely possible for it to refine a weld pool that's being completely inerted, during a comparatively brief welding cycle.

Johnson's Deoxaluminite™ does NOT contain organic, or metallic zinc powder, dust, or oxides, and we think that's a good thing! Zinc (Zn) is the primary element in all hot-dipped galvanized coatings, where an intermetallic bond is formed. It is also thermal-sprayed on steel to protect it. Automakers and other groups also use steel with electro-galvanized (EG) coatings. These are typically lighter gauge metals to be formed, then spot-welded, to make assemblies that are light weight, strong and corrosion resistant. Many of today's EG coatings contain a small amount of aluminum to increase ductility, making these parts easier to form without fracturing their coating at tight bends. All these different types of zinc-rich coatings can provide a good measure of self-healing corrosion protection, even if their coating gets scratched through to the base metal.

Welding through galvanized, especially hot-dipped coatings can be difficult and usually requires welders having more experience. This is primarily because of additional fumes and moisture that is typically generated. Such fumes have long been associated with a higher incidence of imperfections in welds, including porosity, spattering, voiding and even wormholes which usually show up along the center of a weld, at its last point of solidification.

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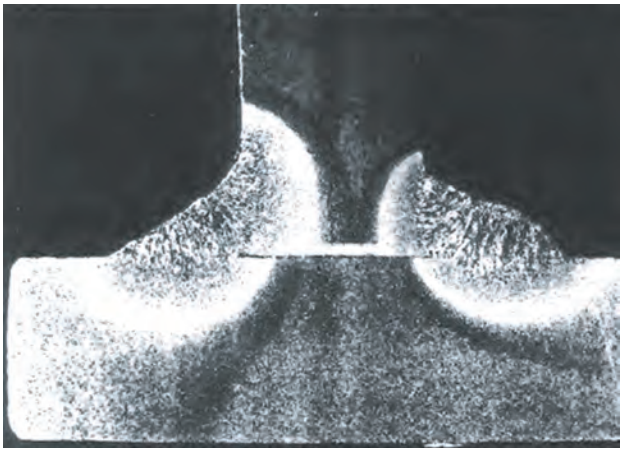
The element Zinc (Zn) becomes molten at only ~780 deg. F and its boiling point is just ~1,650 deg. F (unlike aluminum at ~4,500 F). Several other low-temperature elements that are predominant in coatings for iron-based alloys include; the highly toxic Cadmium (Cd), which melts at only ~610 deg. F, and its boiling point is only ~1,400 F, as well as terne coatings, mostly Lead (Pb), which melts at only ~620 deg. F and its boiling point is ~3,180 deg. F (still somewhat lower than aluminum!) Regardless, adequate personal protection is highly recommended for any high-temperature metal joining process, i.e., brazing or welding! This is especially true when the base metal is coated with "low-fuming" elements like those described above, Cd, Pb, and Zn, listed here in order of their toxicity!

Exposure to low-temperature metal fumes can make welders and perhaps nearby workers more susceptible to "Metal Fume Fever," unless they use proper personal protection, like fume masks, hoods, etc.. Also, restrictions may be required, even regulated, for specific areas inside a factory based on high exposure or toxicity levels for the above mentioned low-fuming metals, Cd, Pb and Zn. It's always important to know what metals are being welded, and especially what elements were used, if they are coated?

DEOXALUMINITE®

Johnson's Deoxaluminite,™ as its name suggests, contains fine aluminum powder, but it is completely zinc-free! As such, "Deox" eliminates imperfections that are caused by zinc fumes and moisture which are known to produce porosity, spattering, voiding, and even wormholes in a finished weld. The absence of such imperfections in a "Deox" weld should be readily apparent, and its quality and perhaps fatigue strength should even be improved, as opposed to being degraded!

No Measurable Porosity in "Deox" Weld



All Johnson products are fully supported with the correct labeling, packaging and Safety Data Sheets (SDS), that conform to the Global Harmonized System (GHS). Request our SDS and Technical Bulletin - Call or Email:

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DEOXALUMINITE™ WELD-THROUGH PRIMER

"Deox" saves time and money, without compromising quality when installing industrial and municipal water towers, agricultural storage tanks and enclosures, pressure vessels, oil and gas pipelines, plus coastal, marine, structural, wind, and/or many certified applications!

Deoxaluminite™ coatings are more heat resistant than primers containing zinc dust and oxides, and it produces a very limited "burn-back" from weld areas to maximize protection from rust, or corrosion between overlapping metals that become inaccessible after assembly. References suggest that if even a small quantity of zinc remains in the weld, it can coarsen its grain structure, leading to a more brittle weld and perhaps lower its fatigue strength.

Material scientists have confirmed to Johnson, that when adding a small quantity of aluminum during the alloying process, it can act as a "grain refiner and deoxidizer" for iron-based alloys, as well as nickel bearing, and stainless steels. When you think of it, alloying procedures may not be much different than when introducing Johnson's Deoxaluminite™ to parts before welding, not just for its rust preventing qualities, but as a way of introducing a small, controlled amount of aluminum into your weld pool, for all the right reasons!

Each welding job has it's own unique personality, making set-up perhaps the most important part of every application. When establishing weld parametes, the "time-at-temperature" is paramount! It can effect basically everything, including appearance, quality and weld strength. Arc welding moves along rather quickly, from when an arc is created and the puddle is formed, until it solidifies as heat moves away, the elapsed time can be measured in just seconds. During this ever-so-brief period, welds are being completely shielded to prevent oxidation, and to allow their equilibrium microstructures to form. That's when "Deox's" aluminum powder has time to "work its magic" as a grain refiner and deoxidizer, until it vaporizes at ~4,500 degrees F, without even leaving a trace!

So, may we ask... "WHAT'S IN YOUR WELD POOL?"