



Case STUDY

Maximum Sustainability*

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Regent Paints - USA

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Sustainability is a key concern for the paint and coating industry. The purpose of paint is to provide durability and protection, prolonging the life cycle of the object and enhancing its appearance. The contribution of the paint industry towards global sustainable development can be enormous.

Within our industry we need to prioritize best use and optimization of resources. Reduction of waste on the paint manufacturing floor is a discussion of MAXIMUM SUSTAINABILITY.

Reuse of total paint items is our revolutionary best step forward in sustainability in our industry.

With several options available to land bury or fuel blend paint related materials, manufacturers can get rid of the waste. The dependency on a secondary vendor or recycler is currently inevitable, so is the generation of waste. How about an idea. If an initiative is taken by the factory in the first place to reduce waste creation, then prime responsibility lies with the factory. Hence solution is possible from the point of generation. By creation of a coating product from the waste streams within the facility of the generator we can not only eliminate a lot of waste but provide savings in the raw material imports or extraction of natural resources.

Due to revolutionary formulations and products created by Huzaifa Matawala, several million pounds of materials are kept away from land burials and fuel blending. This results in lesser waste in the factories along with economical reuse solutions. Items moved under this partnership are moving as a product and no longer as waste. (hence less waste generation).

We are seeking best environmental solutions on recycling the paint related waste. We are now reutilizing paints and raw materials in the best sustainable way possible.

Common paint binders

The three most important binders (resins) used in modern paints are:

- acrylic polymers
- alkyd resins
- epoxy resins

Acrylic polymers used in many emulsion paints are based on homopolymers or co-polymers of ethenyl ethanoate (vinyl acetate) and a propenoate

(acrylic) ester. The polymers used in these paints are carried in water (water-borne emulsion paints) which are much better for the environment than paints in which the binders are in organic solvents. Acrylic resins may also be used in industrial paints, either as water-borne emulsion paints or as solvent-borne paints. Solvent-borne industrial paints can have a tough protective finish and are widely used in industry as topcoats, for example on car bodies. For solvent based paints we have extra processes as every batch is special and the products are more diverse in properties. We classify them on the basis of the resins.

Alkyd resin is a complex oil-modified polyester that serves as the film-forming agent in some paints and clear coatings. Developed in the 1920s, alkyd-based enamel paints were once one of the most important types of surface coating. Owing to their incorporation of volatile organic solvents they have yielded preeminence to newer polymer systems (particularly water-based latex paints). Nevertheless, alkyds are still used in low-performance industrial coatings and architectural paints.

Epoxy resins are often used in industrial coatings. They give the paint excellent adhesion together with high resistance to chemicals, are anti-corrosive, and give the physical resistance necessary, for example, on ships and chemical storage tanks.

Workings

We partner with Regent Paints Inc for their technical and reprocessing capabilities, utilizing their plants in several locations to find the environmentally best solution. We can create, classify and use paint waste as a product to be used in paint batches.

We have incorporated the system of reusing the waste, raw materials, wash streams, expired products, mis-tint, batches gone wrong, discontinued lines, closeouts and all kinds of off specs. We can now create items from the factory

Author Profile

Mr Huzaifa Matawala has been a SCAA member since 2017 and has previously published in international coatings journals including *Surface Coatings Australia*.

President of Regent Paints Inc., Huzaifa Matawala, himself, has advanced the paint industry by developing recycling processes for oil and latex-based paints.

To date, Regent Paints Inc. has recycled millions of gallons of paint worldwide through its processes and programs that have proven to make our planet cleaner and greener. The business provides top-tier quality paints and paint-related products in an environmentally sound manner to protect the health and well being of its customers and the overall planet. ■



“We can recycle, classify, rectify, and re-utilize in a very cost-efficient manner.” Mr. Huzaifa Matawala

locations, stores, warehouses or third-party customers to product instead of waste. We take a list of obsolete or unsaleable items along with basic details to categorize them. These items will not be categorized as waste any longer. We crush cans and protect the brands in the events of mis-tint and discontinued or expired finished products.

Fuel blending may be appropriate with the other petrochemicals or oils or flammable items. But solvent based paints like alkyd enamels, stains, solvent based ink products, primers, paint thinners, tank washed solvents, alkyd resins, epoxies, hardeners, etc. are now a part of our reusable paint family. Mr. Huzaifa Matawala (Regent Paints) has patents pending with the United States Patents and Trademark Office for several formulations and processes concerning oil paint recycling.

Our patents cover a total program of recreating a product from the solvent based items like we do with latex recycling. We check the ingredient's details and the chains the resins have formed due to potential reactions. The study of the binders and resin in the paint is essential to determine the final batch consequence.

Process

For Water Based Paints the process is simple:

- Color-wise sorting,
- Bulking,
- Filtering,
- Blending,
- Packing.

Stages involve Initial sorting on the basis of:

- A. All kinds of decorative enamels/ epoxies/ polyurethane and industrial coatings and primers. Before we finalize a contract we ask for TDS, specs, or sample report, or visit in person. We always have an idea of what is collected. Most of the items are mineral spirits based and most general resins are soya based, long/medium oil.
- B. Compatibility with other matt and gloss paints. We use Glosso-Meter and density checks to ascertain the resin content and strength of the item received. There are variations in every barrel we receive. But the final product is primer of matt/ eggshell finish or bitumen item. The final product performance is not very demanding. It is a basic economic coating for walls, metals or wood.
- C. Density and ingredient check. After the above steps we ascertain the product mixing in batches of our patented primers and coatings. We have to be careful in this. If we mix one wrong can the entire batch gets gelled.

We create final products that are used in the market for our local buyers. The use of these coatings is minimal in the developed countries, but can serve as a major help in the economies that need infrastructural development. The infrastructural zones of the developing countries can be served with the durable healthy products, that are created from the solvents and oil paints. We have markets which use these items as an economical coating.

We produce bitumen paints and several coatings that use lower end resins and solvents in formulations. Such primers serve as an undercoat. We have replaced bitumen coat formulations with these recycled paints. We have also formulated several primers for wood and metals. The salty humid and dry extreme climates require a coat that protects the surface, prevents the erosion on walls and keeps the structure standing for longer. We have listed technical data sheets with the ministry of Kuwait with the element of alkyds and its CAS details as a part of the new changed formulation. These products have been tested in the market and been approved as they passed the requirements and functions.



With a vision to initiate a process to recognize a fact that oil paints have several important ingredients that are better utilized as paints. By burning them into fuel we burn the resins, premium solvents, wax, metallic driers, pigments, additives, other valuable ingredients.

When we burn these ingredients, we need to understand the cost of creating a pigment is energy and resource costly.

Hence the energy, resources, power and rare blends of nature and technology could be better utilized than just incorporating it as a fuel blend.

Because, when we fuel blend these specialty items, we have wasted an opportunity to save them. Hence the cycle of generation of newer resins, solvents, metallic driers, pigments, additives, etc has to take place. So, we have to again extract more gums from trees, or erode many more mountains for minerals, or suck the oils from the sea to create specialty monomers or hydrocarbons to attain the technological expertise for premium specialty coatings.

It is far more environmentally appropriate to re-utilize oil paints and paint related items so we can save the process of raw material generation. And re-utilization of the oil paint saves on natural resources. Also, in most of the cases the paints of certain grades do not help the burning process, in fact they hamper the fuel blending costings. ■

PS: Mr Huzaifa Matawala will be presenting the paper *Maximum Sustainability* at Biobased Coatings Summit APAC, Thailand, on the 15th & 16th January 2020.
www.wplgroup.com/aci/event/biobased-coatings-apac/