

## A Sustainable Circular Economy for Coatings

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Civilization has reached an era where achievements in various fields have led to some of the greatest scientific inventions. We have seen the Industrial Revolution, then globalization, and now a system of economics that never previously existed. With access to the most advanced technologies, we are now in an era of abundance. Some of the best products and services have been created.

With rising demands, however, we have extracted more resources. This process not only leads to the highest pace of extraction of resources, but it also makes us the largest waste generators in history.

The greenhouse effect, global warming, climate change, increase in carbon footprint, extinction of species, and depletion of resources are matters of concern. Therefore, the creation of a sustainable coatings manufacturing industry must be a priority.

### Sustainable Formulations

The paint manufacturing industry is slightly ahead of the curve. Initially, the majority of paint products were made from petroleum and heavy, hazardous metals. As we realized the hazards, the industry pivoted toward a biodegradable and environmentally sustainable existence. We have low-volatile organic compound (VOC) paints, biobased coatings, recycled paints, and eco-friendly coatings that perform equally as well as those traditional paints. However, there are challenges remaining.

A low- or zero-VOC product is only a starting point in the creation of environmentally sustainable coatings.



Photo courtesy of the author

They are met by the creation of biodegradable alkyds, polymers, and resins, which are core structural information in a paint molecule. The reaction of this body with pigments, additives, minerals, and solvents creates a complex paint compound.

### Application Parameters

The application of coatings is only as effective as their properties. Coatings contractors constantly deal with parameters such as climatic extremes, varying surface temperatures, and abstract, challenging surfaces. Coatings manufacturers knowingly keep “space” within the paint formulations for things of this nature.

Even so, waste is a common issue once the paints are used, whether from incorrect order planning or misting or other factors.

### The Challenges of Paint Recycling and Reuse

According to a recent report by MarketWatch.com, the coatings industry will reach a global turnover of more than US\$200 billion by 2024. This is a value several times the gross domestic

product of many developing nations put together. This also serves as a much bigger an opportunity for us to do global good.

How? By helping to divert paint wastes and unusable coatings from landfills or burning. One non-profit has begun formulating more than 53 items from used paints and related wastes, thereby reducing land burial and burnings of coatings by 21 million lbs. (9.5 million kg) annually. The remanufactured coatings result in batches of paint that end up painting homes in needy communities. In this case, there is a clear partnership among the non-profits, paint manufacturers, recycling companies, waste transport companies, and community projects.

Coatings manufacturers who simultaneously produce some of the necessary raw materials can work together with other manufacturers, users, and communities in creating a healthier environment overall. Coatings contractors and manufacturers alike can help by donating their non-usable/non-salable products and waste.

The savings in paint reuse go beyond tax benefits and low-priced or free, donated paints. Donated/recycled paint doesn't utilize additional raw materials, and it keeps natural reserves intact. It saves resources and ingredients.

Paint recycling comes with innumerable challenges and improvisations. But in a move toward a common goal of a sustainable circular economy, the manufacturing of these “waste” paints can create a valuable product with a low carbon footprint. And that is quite an achievement. **CP**