



KBL

innovative environmental solutions

Recycling Council of Alberta Innovation - Latex Paint Recycling

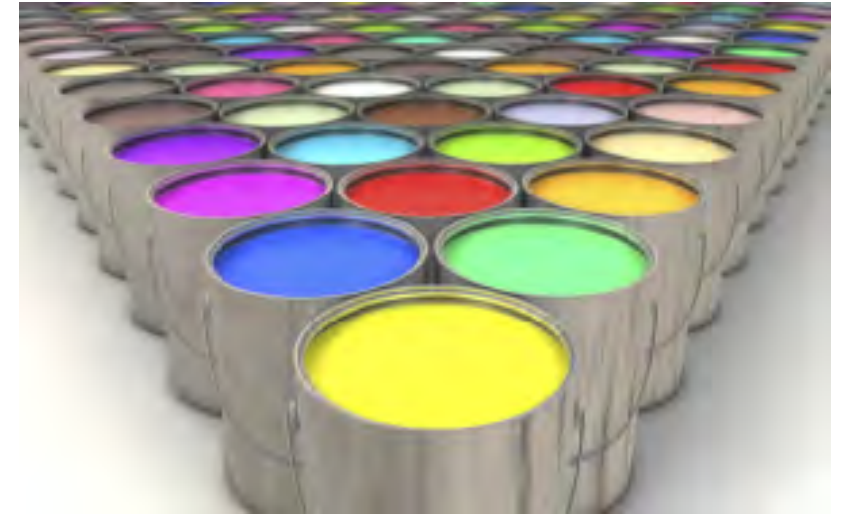
Background

- Latex Paint now makes up more than 90% of the paint products on the market
- Traditional recycle/re-use option is to clean and blend the paint then resale



Limitations of Current Options

- Blending and re-use has been the only practical recycle option to date
- Large majority of the latex paint is not suitable for cleaning and blending and goes to landfill
- Research began for a method to recycle latex paint regardless of the quality of the paint



In conjunction with a cement industry consultant research into a method to recycle latex into a feedstock that would be beneficial to cement manufacturing regardless of the quality of the latex paint.

Cement Manufacturing

The production of cement starts by combining a number of different materials to create a “raw mix.”



There are 4 primary chemical components:

1. Silica
2. Alumina
3. Iron
4. Lime

To produce good quality cement, the proportions of each chemical component needs to be fairly exact.

Cement Manufacturing

In the production of the raw mix, the cement plant has some flexibility in where it gets the four required components. They can come from:

- Natural Sources (i.e., quarried material), or
- Alternate Raw Materials (by-products and other waste materials)



Latex Paint & Cement Manufacturing

Waste Latex Paint is considered an excellent alternate material as it contains all the required chemical components.

Testing indicates the following proportions of desirable components in paint (dry weight):

- Silica (SiO_2) ~53%
- Alumina (Al_2O_3) ~18%
- Iron (Fe_2O_3) ~4%
- Lime (CaO) ~11%

Over 80% of the latex paint has chemical components required in the manufacturing process. The remaining chemical components do not have a detrimental impact on the final cement product.

The high level of cement manufacturing components in the latex paint makes it an excellent reuse application and results in the replacement of some of the quarried raw materials.

Latex Paint Reuse Process



Handling Method:

- Consolidation

Consolidation Facility:

- Latex Paint is removed from its original container in to larger intermediate bulk containers
- Reusable paint (~70%) is blended into colors and sold in the market as an eco-paint
- Remaining residual paint (~30%) is transported to a blending facility for recycling as in cement manufacturing

Latex Paint Reuse Process



Handling Method:

- Blending

Blending Facility:

- Latex Paint is processed and blended into a form that is suitable for a cement kiln

Recycling by the Numbers

- In the first year of operation KBL converted over 700,000 litres of paint into a cement feedstock which would have been landfilled based on historic management methods;
- KBL has formed a joint venture with Calibre Environmental who have IP in creating eco-paint from higher quality latex paint – the initiative has been branded Renue Recycling;
- Renue Recycling is now processing all collected latex paints from Manitoba, Saskatchewan, Alberta, Northwest Territories, Yukon and approximately 30% of collected latex paint volumes from British Columbia; and
- Renue Recycling is projected to re-use/recycle 1,500,000 litres of latex paint in year two of operations – approximately 750,000 liters will be blending into an eco-paint and 750,000 liters will be used in cement manufacturing.

Conclusion

The research and development of a process for recycling a waste stream (latex paint) that was traditionally going to landfill. The results provide a significant breakthrough in recycling of latex paint by:

- Developed a process to divert latex paint from landfill;
- Creating an ability to re-use & recycle a significant portion of the latex paint (>95%);
- Provide an alternate feedstock for cement manufacturing which allows for the beneficial reuse of a waste stream; and
- The most environmentally beneficial outcome is being realized by Renue Recycling not the most cost effective solution.