

Fluorescent marking of roads in high-north



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Abstract

The project objective is to investigate into luminescent coating materials that can be used in marking the roads in high-north. The idea of the project is not entirely new, and efforts have been worldwide to find an energy efficient solution to the street lights. Earlier work conducted in the Netherlands showed quite promising results. However, the challenges include weatherproofing the coat such that it can withstand the harsher conditions such as rain, temperature changes, UV exposure from sunlight. The conditions will be even more stringent in the high north since the roads are exposed to snow, ice, and traffic with studded-wheels.

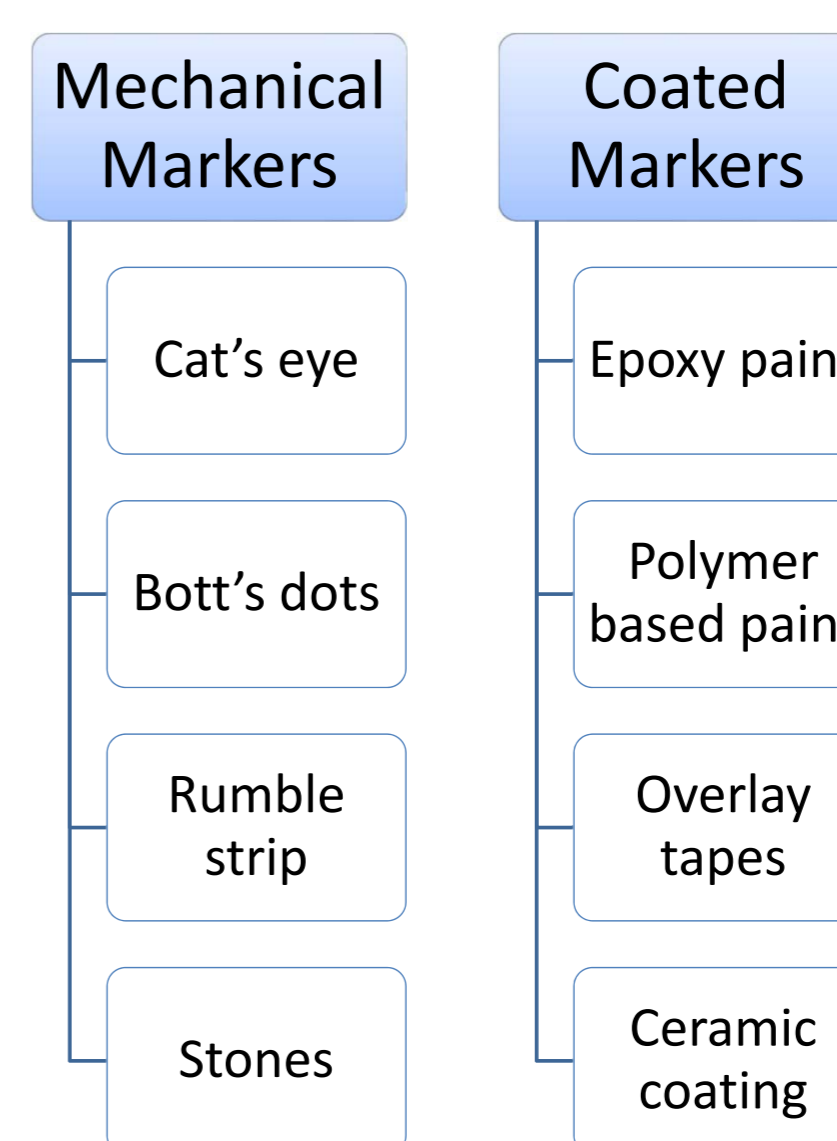
In this work, we are proposing to use polyurethane-based coating materials with added luminescent materials. The work will be carried out by appropriately mixing the materials to obtain the desired luminescent as well as physical properties. The polyurethane-based coats are known for their durable performance and hence used in industries such as aviation, automobiles, etc.

Glow in the dark road markings have been "faded out"



BBC News, 28th April 2014

Types of Road Markers



Advantages of fluorescent marking of roads

- Energy saving and environment friendly
(in comparison to street lights)
- Safer to drive the automobiles
(due to better visibility in dark)
- Possibility of automating the drive
(Smart Drive concept-image tracking)
- Lesser cost and fast/easy deployment
(infrastructure cost for electric lines)

Why Polyurethane?

- Elastic and strong in low temperatures
- Durable
- Impact resistant
- High abrasion resistance
- Corrosion resistant
- Chemical resistant
- Waterproof
- Do not get impaired by UV radiations

Conclusion

The aim of this project is to test polyurethane-based coating materials with added luminescent materials. Considering the properties of polyurethane polymer, it can be said that it is a good contender to be used as fluorescent marking of roads. Needless to say, field tests are required to prove the concept.

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