

Report on the Serviceability of NewPro “Gum Magic (Chewing Gum Protection)”
and Its Health and Environmental Compatibility

Client: NewPro

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1. Reason for the Analysis

In July 2009 the company NewPro asked the signer of this document to evaluate NewPro Gum Magic (Gum Protection), with special respect to serviceability, health and environmental risk of the product.

The product should provide excellent surface protection after application on cleaned surfaces in- and outdoors with a small portion of solvents. In the outside section, all absorbent materials especially stone can be impregnated. The product should be resistant against rain and dirt and prevent sub-surface migration in the outside section. Chewing gum and dirt adhesion to surfaces should be diminished or prevented.

Evaporation, waste disposal, and potential dripping of product onto paved and unpaved surfaces should be evaluated with respect to creation and contamination of grounds and aquatic systems. Furthermore, the product will be tested regarding health hazards with continued use because the product, being a chemical mixture, is subject to testing by the employer according to the Ordinance on Hazardous Substances.

2. Product Description and Application

NewPro is a production and distribution company of products for the preservation of structures and environmentally friendly cleaning and care products which also distributes a product for surface protection. NewPro Gum Magic consists of a watery, chemically stable fluor silan dispersion and should offer a repellent long-term impregnation against penetrating moisture, liquids, and oil and protect against gum adhesion in pedestrian areas. The product is a yellowish clear liquid.

The impregnation protects against penetrating water, liquids, oils and a multitude of other possible surface soiling. The product prevents adhesion of dirt especially to absorbent stonework surfaces. In addition, the product protects against graffiti and algae covering.

In the outside section, the product can be applied onto stones, terraces, paving stones, and in pedestrian areas. It is also applicable in the inner area, e.g. stone floors, floor tiles, etc.

According to manufacturer instructions, NewPro Gum Magic (chewing gum protection) provides a long-lasting protection for all absorbent stoneworks, e.g. brick, limestone, marble, granite, slate, and concrete plaster.

NewPro Chewing Gum protection penetrates absorbent stones and applies itself onto the capillary walls of the stones. The steam diffusion is just insignificantly affected. This prevents the penetration of moisture and dirt etc.

The compounds of the product merge with the respective surface and after desiccation metal surfaces i.e. obtain high gloss.

Applicability: According to manufacturer instructions between 5° and 30° C outdoor and surface temperature at a subsoil humidity of max. 5%

Suitable for Storage: According to manufacturer instructions frost-free up to one year in original container

3. Test of Serviceability and Environmental Behavior

The product recipe is available at Chemie- und Umweltschutzberatung, Dr. R. Schaum GmbH, Saarbrücken. The product „NewPro Chewing Gum Protection“ does not contain

acids, bases, or materials which are classified as poisonous according to the Ordinance on Hazardous Substances. The product is incombustible.

The product is designated and marketed for surface refinement and surface treatment. It can be applied easily with mechanical tools like brushes or rollers. The treated surface is optically refined. After usage, brushes or rollers etc. have to be cleaned with water or disposed of as solid waste.

Depending on the absorbency of the surface, one liter product is sufficient for 8-10m². Sometimes the product has to be applied multiple times. The exact material requirements have to be calculated via the application to a small sample area.

3.1. Execution of Practical Experience

Following package instructions, tiles, stoneware, brick and paving materials from pedestrian areas have been coated with “Gum Magic - Chewing Gum Protection” The result of the tests are shown in the pictures below:



Figure :1 Stoneware coated with Gum Magic



Figure :2 Paving stone coated with Gum Magic

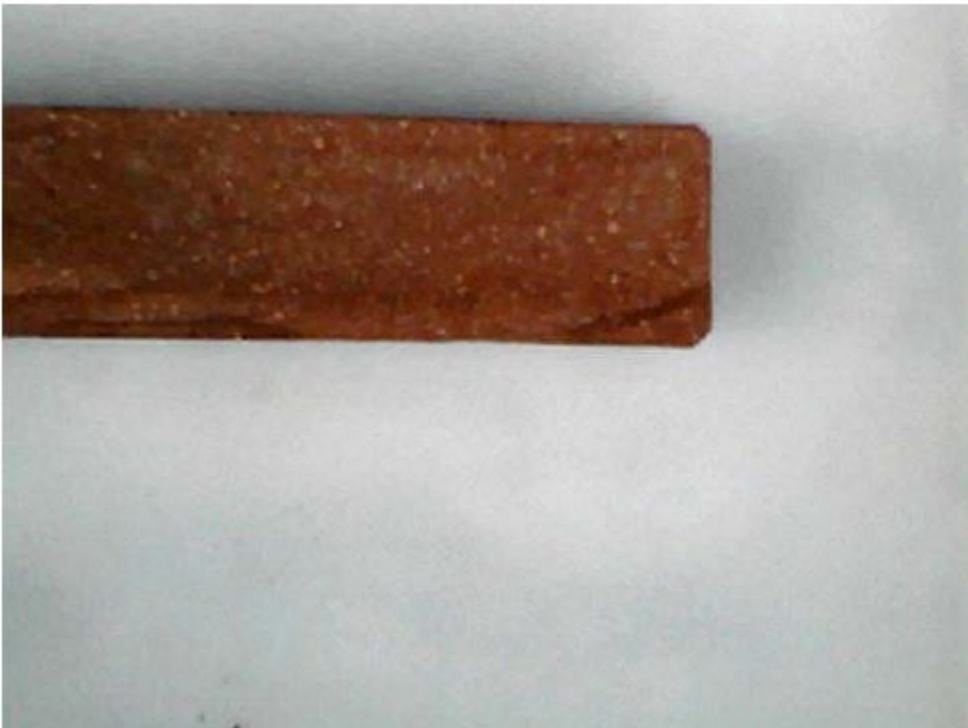


Figure: 3 Paving stone coated with Gum Magic

The coating was applied with a flat brush to non-treated but cleaned and air-dried surfaces. Non-absorbed product has been removed using a soft cloth.

Processing temperature was at approx. 20° C. It was discerned that the product penetrated into the sample material. At first there was a noticeable thin layer on top of the materials. The

treated materials appeared refined, more shiny. The processing was one according to manufacturer instructions. (cp. Technical Bulletin of product).

All materials developed a protective layer, sometimes in the course of several hours. After desiccation, the sample materials could be cleaned with water easily.

The material surface was not affected in any of the tests. Rubber gaskets and silicone sealing i.e. did not dissolve. Glass surfaces were not affected, nor was the clarity significantly changed.

The application rate of the product depends on the person applying the product and the absorption capabilities to the materials to be treated. When used continually, the consumption can possibly be reduced. For the first application during the tests, 100 ml of product were used per m², later applications used only 40-50 ml per m².

The mechanical contacting agents and load suspension means showed different absorption capabilities depending on the application. A distinct conclusion is not possible. The sponges and cloths used to absorb the coating mixture, were affected differently depending on the type and degree of soiling through adsorption.

As the product will be handled by ordinary persons, the mechanical tools can be cleaned with water.

Considering the recipe of the product and the possible soiling of the mechanical tools, the disposal of the potential small amount of incidentals can be done together with household garbage. Incidentals might also be re-used after cleaning with water.

3.2. Test Evaluation of Coated Materials Regarding Chewing Gum

The materials which had been treated with Gum Magic or Chewing Gum Protection were pressurized with used chewing gum.

The following figures document the test results:



Figure: 4 Chewing gum on coated stoneware



Figure: 5 Chewing gum on coated paving stone



Figure: 6 Chewing gum on coated paving stone

The coated tiles respectively paving stones loaded with chewing gum were exposed to weather conditions for 6 weeks. It was noted that the coated surfaces did not undergo any change during this time, and the chewing gum was subject to aging processes during the alternating sunshine and rain. Localized flatting could not be noticed.

Subsequently, the sticking chewing gum was removed. It could be removed from the surfaces without major effort, and without scraping with spatulas. The product “Magic Gum” offers a good protection against the intensive penetration of chewing gum into stones.

In addition, the sample materials have been treated with diluted hydrochloric acid (approx. 0,1 %) and diluted sodium hydroxide solution (approx. 0,1 %). The “Magic Gum” coating proved resistant against these materials.

There are no hints that the product was not fit for purpose when applied according to the directions of the Technical Bulletin. The properties as described in the Technical Bulletin could reproduced.

3.3. Product Characteristics in Aquatic Systems

Magic Gum Chewing Gum Protection is a water-based, fluorinated, polysiloxane compound in a suspended form. The intended usage causes an interlacing of the components.

If applied correctly there is no dripping of product, meaning there is no additional burden due to aquatic systems.

The product is assigned to water hazard class 1, the lowest possible water hazard class. Compared with products containing solvents, Magic Gum is absolutely an innovation and improvement.

3.4. Conduct in Clarification Plants

The product does not contain heavy metals nor organic solvents, which could be toxic for water organisms. The product is partly soluble in water, partly it is emulsified and partly **suspended**. During dessication, the water evaporates and a polymer film is created. If applied properly, product will not get into sewage.

It is highly unlikely that a threshold value for sewage discharge will ever be violated considering the amount of this product being marketed.

4. Summary of the Tests and Evaluation of the Serviceability and Environmental Compatibility

Magic Gum has been developed especially for long-term impregnation is a water-based, fluorinated, polysiloxane compound. It creates a long-lasting surface coating, especially upon absorbent stonework, offering protection against environmental influences.

The product in its marketed specification does not contain volatile solvents, nor toxic substances according to the current Ordinance on Hazardous Substances.

Under the condition of intended use of product according to the Technical Bulletin, the product is qualified to prevent the adhesion of soiling to surfaces like chewing gum.

The experiences from testing, with reference to the recipe, show that the quantities of the product being emitted into the air or the ground do not constitute an environmental impact.

The long-term protection has been tested and proven to be long-lasting. It is a reasonable application to conserve materials which are subject to environmental burden.

The product is also applicable indoors without any problems. The product achieved all characteristics as described in the Technical Bulletin.

The product "Magic Gum Chewing Gum Protection" marketed by NewPro, Monheim, is applicable at any place without any problem. It is a long-term impregnation which is easily applicable in practice. The conservation effect is achieved without the use of solvents, and provides excellent protection of surfaces indoors and outdoors.

Appendix

Technical Bulletin NewPro Gum Magic (Chewing Gum Protection)