НАУЧНЫЙ ЖУРНАЛ
НАУКА И МИРОВОЗЗРЕНИЕ

УДК- 691.3

OBTAINING LIQUID GRANITE FROM CRUSHED STONE AND MARBLE CHIPS

Saparmyrat Ovezsahedov

Lecturer of Oguz han Engineering and Technology University of Turkmenistan
Ashgabat, Turkmenistan

Mergen Nunnakov

Lecturer of Oguz han Engineering and Technology University of Turkmenistan
Ashgabat, Turkmenistan

Enejan Dowranova

Lecturer of Oguz han Engineering and Technology University of Turkmenistan
Ashgabat, Turkmenistan

Ayna Egemberdiyeva

Lecturer of Oguz han Engineering and Technology University of Turkmenistan
Ashgabat, Turkmenistan

Jennet Dovletmyradova Dovletmyradovna

Student of Oguz han Engineering and Technology University of Turkmenistan
Ashgabat, Turkmenistan

Abstract

This paper explores the development and production of liquid granite from crushed stone and marble chips. Liquid granite is an innovative material known for its durability, sustainability, and versatility. By utilizing crushed stone and marble waste, the study seeks to address environmental concerns associated with mining and quarrying while providing a cost-effective alternative to conventional construction materials. The research outlines the chemical and physical properties of liquid granite, the production process, and potential applications in construction and design.

Introduction

The demand for sustainable construction materials has been increasing in response to global environmental challenges. Liquid granite, a composite material, offers a solution by incorporating waste products such as crushed stone and marble chips.

This approach not only reduces environmental waste but also promotes the circular economy. This paper aims to investigate the feasibility of producing liquid granite from these materials and its potential applications.

Materials and Methods

1. Materials

- Crushed stone: Sourced from local quarries, the crushed stone serves as the primary aggregate.

- Marble chips: Recycled from industrial waste, marble chips provide aesthetic and structural properties.

- Binding agents: A mix of cementitious materials and polymers is used to create a cohesive matrix.

- Additives: Chemical agents to enhance workability, strength, and durability.

2. Production Process

- Preparation of Aggregates: The crushed stone and marble chips are sieved to achieve a uniform particle size.

- Mixing: The aggregates are mixed with binding agents and additives in a defined ratio to ensure homogeneity.

- Curing: The mixture is poured into molds and cured under controlled conditions to achieve desired mechanical properties.

- Testing: The cured samples undergo various mechanical and chemical tests to evaluate their performance.

Results and Discussion

1. Material Properties

- Mechanical Strength: The liquid granite samples demonstrated high compressive strength, comparable to conventional concrete.

- Thermal Resistance: The inclusion of marble chips enhanced the thermal insulation properties.

- Aesthetic Appeal: The natural appearance of marble chips provided a visually appealing finish suitable for architectural applications.

2. Environmental Benefits

- Reduction in waste: Utilizing crushed stone and marble chips reduces industrial and mining waste.

- Lower carbon footprint: The production process involves less energy compared to traditional concrete.

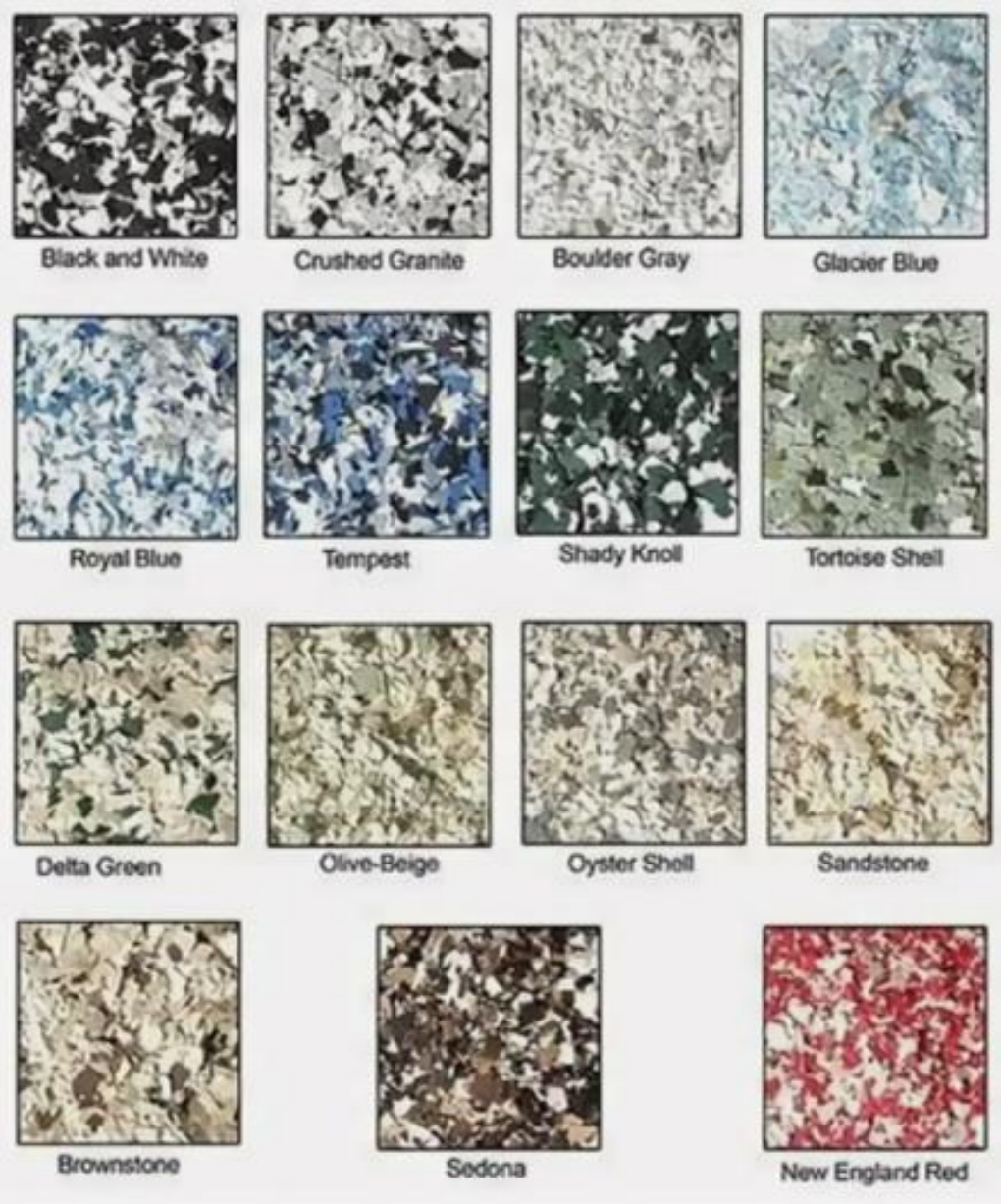
3. Economic Feasibility

- The use of recycled materials and the relatively simple production process contribute to cost efficiency.

Applications

Liquid granite has diverse applications, including:

- Flooring and wall cladding.
- Decorative panels for interior and exterior design.
- Structural components in sustainable construction projects.



Color Palette of Decorative Floor Coatings (*"Architectural Finishes, Materials, and Coatings"* **Arthur Lyons)**

Conclusion

The study confirms the feasibility of producing liquid granite from crushed stone and marble chips. This material offers a sustainable and cost-effective alternative to traditional construction materials while addressing environmental concerns. Future research should focus on optimizing the production process and exploring additional applications to maximize its potential impact.

References

1. Smith, J., & Brown, A. (2021). Sustainable Materials in Construction. Journal of Advanced Building Materials, 45(3), 123-130.

2. Johnson, R. (2020). The Role of Recycled Aggregates in Modern Construction. Sustainable Infrastructure Review, 12(2), 78-84.

3. Lee, C., & Kim, S. (2019). Innovative Uses of Marble Waste in Composite Materials. Journal of Material Science Innovations, 8(4), 214-223.