Tech-Accès Canada

Version française

Coalia (Coalia)

Cégep de Thetford

Thetford Mines, QC

ABOUT Coalia

COALIA's mission is to contribute to the development of innovative materials, products and processes in the **mineral technology** and **plastics sectors**.

COALIA contributes to the economic development of Quebec and Canada through applied research, technical assistance, training and information activities. COALIA works on the development of technological solutions, their transfer and implementation in a context of sustainable and responsible development.

COALIA is at the heart of the innovation ecosystem as a unique expert center in two distinct and complementary fields of expertise: plastics and mineral technologies. In each of these fields of expertise, COALIA is active in the development of materials, process optimization and the development of new value-added products.

COALIA serves companies and organizations that require technical services, applied research and development services, prototyping or feasibility analysis services, as well as consulting and coaching services, etc.

COALIA collaborates with many research partners (public research centers, university or college research centers, CCTTs and CATs, professional associations and sectoral groups, etc.) to carry out research projects for the greatest benefit of businesses.

Thanks to its high-level expertise and state-of-the-art infrastructures, COALIA is recognized as a center of scientific and technical expertise that cannot be ignored.

- in characterization and transformation/implementation of thermoplastic polymer and elastomer materials (plastics processing)
- in characterization and treatment of mineral substances (extractive metallurgy and mineralurgy)
- in the characterization and development of advanced materials (nanomaterials, hybrid materials, high value-added materials, etc.).
- Development of innovative processes such as 3D printing of engineering plastics, production of micro and nano mineral particles, development of bioplastics, recycling and product recovery, etc.

- as a key partner in the development of technological solutions and as a reference in terms of transfer with a view to their commercialization, in its two fields of activity.

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RESEARCH AND INNOVATION EXPERTISE

EXPERTISE

1. **Expertise for Mineral Technology Sector**
2. Geometallurgy
3. Geoscience data mapping and processing
4. Petrography
5. Mineralogy
6. Comminution
7. Mineralurgical processes
8. Purification of ores
9. Hydrometallurgy
10. Process optimization and simulation
11. Valorization of by-products
12. **Expertise for Plastics Sector**
13. Development of new thermoplastic polymer formulations
14. Optimization of plastic transformation processes
15. Development of eco-responsible resins from biosourced, biodegradable or recycled polymers
16. Use of eco-friendly processes (reactive extrusion)
17. Valorization of recycled plastics
18. Development of functional polymer materials
19. Preparation of innovative fillers for the functionalization or reinforcement of thermoplastic resins

Previous Research Projects

- **Mineral Technology Projects**
- Procédés de fabrication additive avancés pour les futures applications d'appareils à décollage vertical
- Création de stratégies démonstratrices de conception et de fabrication hybrides pour l'outillage – Axe polymères thermoplastiques
- Processing of recycled nylon powders for additive manufacture
- Development of filaments based on high-performance and fiber-reinforced thermoplastics for 3D printing of parts used in the fields of transportation and high-temperature composite tooling.
- Development of biorenewable polymers for the plastics and composites industry
- Development of a new agricultural mulch: Phase 2 - optimization, performance validation and industrial transfer
- Development of a biosourced formulation for the coating of cardboard paper
- Development of environmentally friendly thermoplastic composites for the automotive industry from cellulose filaments
- Development of a marine cellulose-biopolymer material by surface treatment techniques for cellulosic products
- Study of the durability and mechanical performance of HDPE-based hybrid materials: Application to the valorization of recycled polymers used in water pipes
- Use of innovative technical fillers in polymers
- Recovery of sugar bush tubing and accessories
- **Plastics Sector Projects**
- Promotion de la géométallurgie comme outil de développement des projets miniers

20. Development of polymer materials for additive manufacturing (thermoplastic composites and nanocomposites, photosensitive resins, polymer binders, etc.).

- Technologies innovantes pour l'industrie extractive dans une perspective géométallurgique : valorisation de l'ilménite, de l'apatite et de la magnétite d'une propriété minière; développement de produits à valeur ajoutée d'un gisement de calcaire; valorisation de sous-produits d'un procédé de production d'hydroxyde de lithium; valorisation des résidus de l'exploitation d'un gisement de graphite
- Geallurgical approach applied to the purification of quartzite ore
- Enrichment of a spodumene concentrate by unconventional gravimetric separation technologies
- Development of an extractive magnesium bioleaching technology
- Development of a new process for the production of technical granules from recycled glass
- Production of glass from an industrial by-product of aluminosilicates

Fields of projects

- Plastics processing (transformation and implementation of plastics)
- Mineralurgy (processing of mineral substances and ore treatment)
- Materials Science and Engineering
- Product Development
- Environment and responsible use of resources
- Additive manufacturing