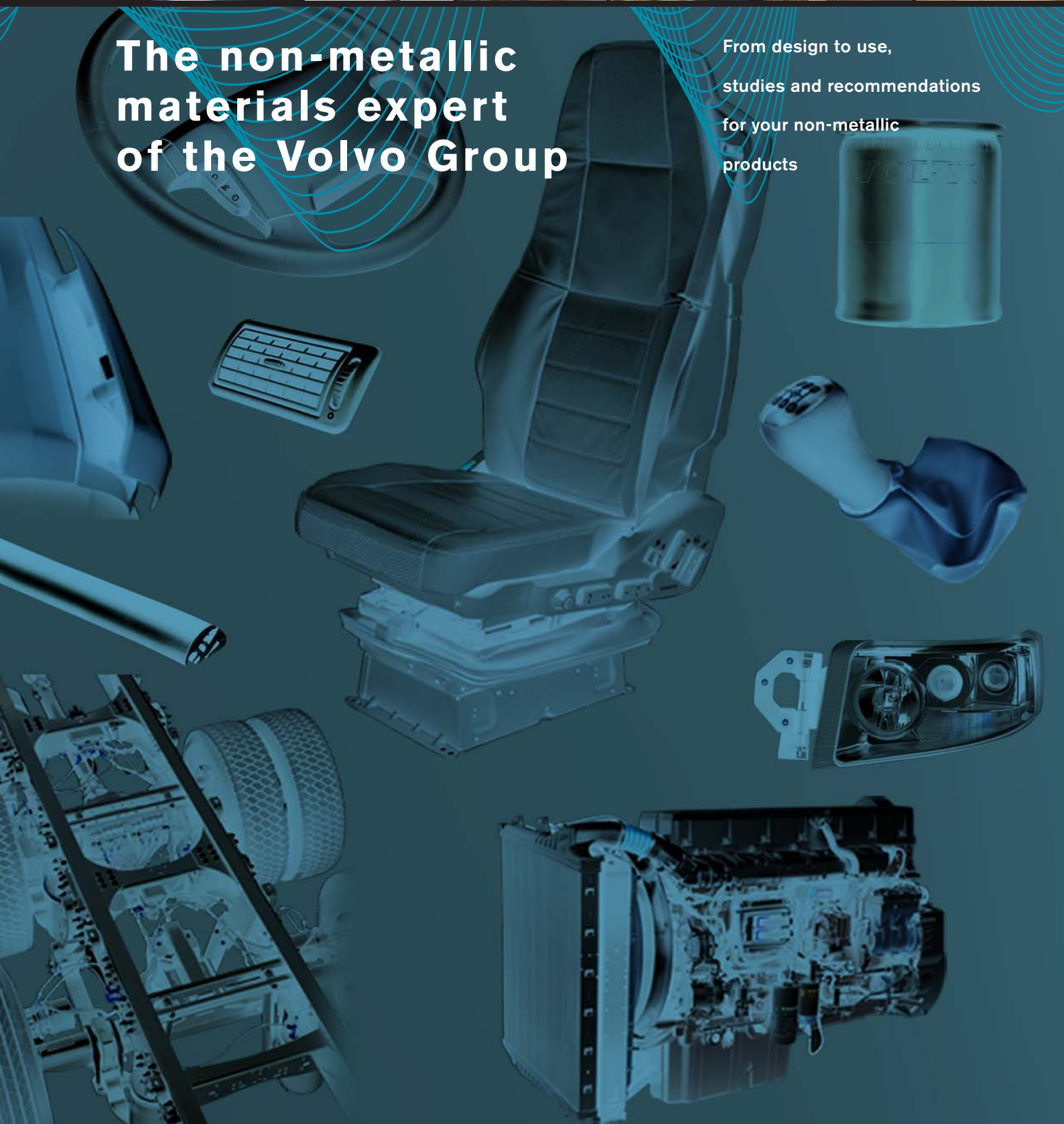


Materials Technology



**The non-metallic
materials expert
of the Volvo Group**

From design to use,
studies and recommendations
for your non-metallic
products





Technical expertise at the service of your products

A fast changing context

Founded in 1927 in Sweden, our group, AB Volvo, has spread to every continent, and today employs some 80,000 people. As a major industrial firm, AB Volvo is fully aware of its economic, social and environmental responsibilities. It is thus hardly surprising that the values of the Group feature the principles of quality, safety, and respect for the environment.

Quality, from design to distribution of its products. Safety, for clients using our products, whether for professional or personal purposes, but also for our employees and partners. Lastly, respect for the environment, with our effort to reduce the environmental footprint of our prod-

Materials Technology offers the unique combination of world class technical know-how and knowledge of the Volvo Group's industrial processes.

ucts throughout their life cycle: design and manufacturing, use of our products, and in particular our engines, and of course, recycling.

In addition, the growing planetary awareness of these issues of quality, safety and environmental protection is expressed in the evolution of the regulatory environment in which the various entities of the Group operate.

Whatever your activity, the development, validation, and follow through on your product life cycles have certainly changed over recent years. More than ever, you need to supply your clients with high-quality products that meet international standards for safety and environmental protection.

Why we are here: to improve the reliability and the lifespan of your products

It is in this context that the Materials Technology laboratories are there by your side. We represent a global technical service provider for all sites and divisions of the AB Volvo Group, in Europe, Asia, and North and South America.

Each year we carry out more than five hundred missions for evaluation, analysis, and measurement of the various materials used by the entities of the Volvo Group. By making the most of this sum of experience and studies, the teams of engineers and technicians of Materials Technology let you take advantage of the enlightenment of experience for the design of new parts, new materials, new industrial processes on the assembly line, and enable you to understand the reasons which can lead to the failure or premature wear of a particular component.

Another advantage comes from the fact that this transfer of technical knowledge is closely connected to Volvo industrial processes. As an integrated laboratory, Materials Technology carries out missions at industrial sites, factories, assembly lines, as well as with the Group's suppliers on a regular basis. Our recommendations and advice take this context into account. Because of this, our expertise is not only technical, but is industrial as well, and is imbued with the Volvo corporate culture.

One-of-a-kind know-how



Our world-class know-how can be applied to the entire life cycle of products: the advanced engineering and design phase, analysis of the initial samples, the launch of pre-series and industrial production, all the way to the understanding of problems and incidents occurring to parts or components during the product's life, and of course, proposed solutions for these problems.

Depending on the nature of your needs, our services can include:

- **Traditional laboratory testing:** static or dynamic mechanical tests, physico-chemical analyses, microscopic (optical or electronic) analyses, measurements of appearance and colorimetry, aging and durability tests (UV resistance, corrosion, adherence, abrasion, etc.), non-destructive testing, etc.
- **Investigation and evaluation:** analysis in the field or in the laboratory of the causes of incidents, malfunctions, part failure, as well as proposals for corrective or preventive actions; development of new components, evaluation of new materials.
- **Consulting, training and technical audit services:** management of advanced engineering projects, participation in the definition of specifications for suppliers, recommendations for the improvement of part design and production processes, including project management, technical support for audits of manufacturing processes, special training within our laboratories for groups of Volvo engineers and technicians.

An expertise center for the entire AB Volvo Group

The Materials Technology laboratory belongs to the Business Unit Volvo Technology and work for all divisions and all product ranges of the AB Volvo Group.

Proof of the quality of its services, Materials Technology is certified ISO 9001 and 14001. Our clients are located around the world, and have engineering offices or production sites in Europe (Volvo Truck, Renault Trucks), in North America (VTNA, Mack Trucks), in Latin America, and in Asia.

500

On average, Materials Technology carries out 500 missions yearly for testing, evaluation, and consulting on behalf of the various entities of AB Volvo.



Work based on scientific collaboration and professionalism

A constant collaboration

All missions managed by Materials Technology give rise to engineering reports, whose content is modified according to the complexity and the nature of the subject dealt with. These documents, as well as the raw analysis data, are systematically stored in global databases. In this way, engineers and technicians are able to put into perspective the results of a study recently ordered and compare them with previous analyses of the same material or situations.

By bringing together our intimate knowledge of materials and the technical excellence of our analyses, we are able to provide recommendations and advice of the highest quality.

Throughout the mission, as a client you have special access with the person at Materials Technology in charge of your request. Thanks to regular contacts, you will be kept abreast of the progress of the mission from its earliest results (numerical testing data, leads for possible improvements, etc.). Once again, the fact that we are part of

the Volvo Group means that we speak the same language and share the same processes.

Resources available

«Grey matter» represents the primary capital of our laboratories. The professionals working there -- doctoral students, engineers, and technicians -- come from the fields of materials science, chemistry, physics, and mechanics. And because an expert needs the right tools, the Materials Technology laboratories are fitted with the full range of testing and measurement equipment needed.

A continuous investment in the latest devices allows us to regularly refurbish our test benches, both for technical and for computing aspects. By bringing together the skills, the testing tools, and the IT systems to put together and make the most of our technical studies, Materials Technology ensures you the highest level of expertise and service.

Result tested and approved by our clients

→ At the request of Volvo 3P for Volvo Trucks, Renault Trucks and Mack Trucks products, Materials Technology wrote a technical regulation for suppliers of elastomer joints for truck cabs.

Managed by the engineering office at Volvo 3P in Sweden, this working group worked for a year and a half. Materials Technology was called on at the very beginning of the project for its technical skills tied to materials, as well as for its ability to determine the most effective testing method. A summary of the best practices was produced at the end of the mission.

→ Materials Technology is involved in Advanced Engineering projects and work groups for various Business Units or Business Areas. For instance this forward looking research concerns the impact of biofuels on the engine and chassis components of the future vehicles manufactured by the Volvo Group.

The entire spectrum of non metallic materials

Volvo Materials Technology Lyon covers a vast field of expertise, both in terms of assignments, domains of competence and technical resources implemented. These three aspects form the basis of the reliability and quality of the services assured by the laboratory to the different brands and branches of the AB Volvo Group.

Pre- and post-production interventions

In the project phases, Materials Technology Lyon is solicited to contribute towards reducing material-related risks, in collaboration with the suppliers. This enables us to minimize the technical risks in product development projects and to assure compliance with the specifications while still meeting the required deadlines. The design offices or purchasing departments also call on the laboratory for its ability to recommend and advise on material choices as well as on the optimum design to achieve the desired level of performance. Materials Technology can also define some or all of the technical requisites for materials-related specifications.

During the entire life cycle of the vehicles, Materials Technology intervenes at the request of its customers to assess components and provide technical assistance to all of the Volvo Group and its suppliers. The strength of Materials Technology

resides in its ability to recommend technical solutions having knowledge of the environmental stress on the vehicles at the end customer. Therefore Materials Technology is capable to outline the technical requisites to be implemented in the materials domain to achieve the quality, cost, lead time and service level expected of the products.

Knowledge sharing and technology watch

These missions require constant dialogue with our customers but also with university research organizations or specialist partners in a specific technical field.

Mostly, handling a request for expertise requires the use of several test methods and involves the technical skills of more than one specialist. By sharing knowledge within the Materials Technology team and exchanging information with our customers we are able to obtain the most pertinent results and we place value on this method of operation.

Capitalization on expertise reports also helps build up a substantial database which can be used on request. It affords a perspective view of the results and methods used, compared to previous conclusions in a similar situation. The database improves the overall efficiency of the laboratory.



MATERIALS PREPARATION



A wager of accuracy

This group's mission is to judiciously choose which techniques are best suited to prepare the materials for expert appraisal. Based on this choice, the quality of the reports prepared by the laboratory depends on the care and rigor exercised during the sample preparation. Therefore, Materials technology has established a «materials preparation» group, whose personnel are specifically trained in these processes. The personnel archive all requests and preparations performed for each expertise in a database.

Computer monitored processes

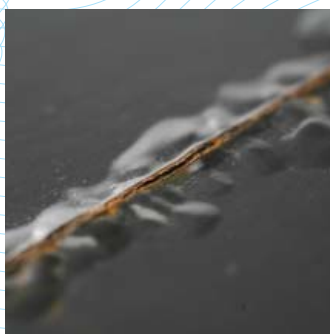
The team of preparers makes the test samples needed for the smooth progress of the assignments, for instance polishing the parts to be analyzed before handing them over to a technician or engineer. About thirty preparations, on average, are done each month.

This fully automated process is controlled in the form of a flow of data triggered by the study mission leader, transmitted to the appropriate preparers. Depending on the complexity and urgency of the assignments, it is thus possible to adapt the laboratory's work on a daily basis.

Shared know-how

The daily discussions between preparers, technicians and engineers encourage capitalization on knowledge. Working on various projects, the laboratory preparers have the objective overview and experience needed to disseminate this know-how to the study managers, and continually improve the quality of the tests Materials Technology Lyon performs, and the recommendations it makes to its customers.

CORROSION RESISTANCE



Focus on durability and aesthetics

Over time, aggressions such as damp or salty air are damaging the vehicles, causing metallic parts to corrode, and this, despite all of the protective coatings applied (paint, electrolytic coatings). Whether trucks, construction equipment, buses or powertrain components, the AB Volvo Business Areas do their utmost to increase the service life of their products.

Also, at resale time, the perceived quality by the buyers is taking on increasing importance. Indeed, just one corroded item of equipment on a vehicle is often enough to cause the customer to wonder about the durability of the products.

Materials Technology Lyon's anticorrosion activity takes place before any of these problems occur, by advising purchasing and engineering departments, but also further down the line, by offering curative actions to factories or suppliers of the AB Volvo Group.

Preventive services

Materials Technology Lyon operates in several ways.

The first one is the benchmarking of competitors' products and field tests surveys with end customers. This is necessary to define the test requirements which closely match with customer expectations.



CORROSION RESISTANCE

Next, Materials Technology will advise vehicle project teams on technical solutions and requirements to be included in product technical specifications. During the product validation phase, corrosion testing activities can also be included to ensure that corrosion resistance quality targets are met. Obviously, the objective is to reach the qualitative threshold defined by the end customer

Training engineers in corrosion prevention and protection techniques is also an excellent way to improve the products.

Corrective missions

When a part corrodes too quickly and recurrently, Materials Technology will search for the root cause, using various test methods and analytical techniques. Is the reason a production non conformity ? Was the choice of materials or coating protection suitable ? Could the packaging of the parts prior to assembly in the factory be the source of the problem ?

For the verification of these hypotheses, sending out Materials Technology Lyon corrosion specialists to the sites concerned may be necessary. The information produced in the final report then serves to help the different players concerned to modify components specifications or production process.

Testing capabilities

Two types of test methods are mainly used:

Corrosion test chambers (VICT cyclic corrosion, salt spray) subject the components, usually coated with an anticorrosion protection to heat, moisture and a corrosive environment. The test duration varies from a few hours to several weeks.

Also used, the electrochemical method considerably reduces the test time, from six weeks to only twenty-four hours. Differently from the first approach, this test characterizes the materials corrosion resistance with actual figures, but without supplying visual evidence of the consequences of the corrosion in real conditions of use. This method is particularly useful with new materials and new coatings, rapidly indicating their corrosion resistance level.

Active expertise in the field

Materials Technology carries out approximately one hundred assignments each year in the corrosion domain and some studies can last up to several months, depending on the complexity of the topic. If necessary, Materials Technology Lyon anticorrosion specialists can undertake field studies.

At the request of Volvo Trucks, about a hundred used trucks intended for resale were inspected in countries with different climates (Finland, United Kingdom, Czech Republic), in order to identify weak points, seek short term corrective solutions for these vehicles and propose design or protection improvements on components subject to corrosion for future generations of Volvo trucks.

PHYSICO-CHEMICAL ANALYSES



Nature of the components concerned

The domain of investigation is vast, and covers all categories of vehicle components and their materials:

- Metals
- Fluids
- Polymers
- Adhesives
- Paints and surface treatments
- Fabrics, etc.

Testing capabilities

Physico-chemical analysis methods:

- Gas Chromatography (GPC)
- Calorimetric methods (DSC and TGA)
- Fourier Transform Infra Red spectroscopy (FTIR)

Microscopic analyses:

- Optical microscopy and scanning electron microscope (SEM)
- Chemical analysis by dispersive energy system (EDX)

Examples of services performed

Physico-chemical analysis is a key competence of Materials Technology. It enables identifying the materials and characterizing defects present in the components: nature, size, location. Physico-chemical analysis is often essential to determining the root cause of failure.

Broader knowledge of the available investigation techniques is necessary if one is to be able to choose the most relevant technique in a particular situation. Materials Technology develops the analysis methodologies using its own in-house resources but also has a network of competencies available through other laboratories belonging to the Volvo Group, or outside specialist laboratories.

Assignments include such investigations as thermal analysis (ATG) of the conformity of a polymer used on an exhaust gas recirculation valve, to understand whether the failure of the plastic component was the source of this valve overheating. This work was done at the request of Volvo Powertrain, Göteborg.

For Volvo Powertrain Lyon, some abnormal deposits found on the air inlet valves were analysed using Fourier Transform Infrared spectroscopy (FTIR).

MECHANICAL TESTS



Nature of the components concerned

This involves potentially all identifiable materials and components on the vehicles; however Materials Technology Lyon focuses its mechanical test expertise essentially on non-metallic materials

Testing capabilities

- Flexural and tensile tests
- Multi-axial impact test – measurement of the fragile-ductile transition temperature
- Shear or tensile tests on assemblies
- Measurement of the tear or failure load on components, using specific test fixtures
- Peeling tests
- Fatigue tests

Examples of services performed

Materials Technology Lyon's expertise in the domain of mechanical tests naturally inclines towards the performance and development of test methods adapted to the situations encountered, but also on the definition of behavior laws governing the materials or assemblies that can later be entered into the digital calculation codes. This activity therefore represents a high added value activity towards engineering departments.

For instance, in the context of a research project for Volvo 3P, the laboratory was asked to determine mechanical behavior laws at high speed on SMC (Sheet Molding Compound) components.

On behalf of Volvo Powertrain Hagerstown (USA), Materials Technology Lyon helped to choose the polymer material for a water pump impeller, the customer's objective being to optimize the overall mechanical strength.

FUNCTIONAL FLUIDS



Nature of the components concerned

The different fluids under consideration include:

- Lubricants (engine, transmission, axles, etc.)
- Greases
- Coolant liquids
- Fuels
- Ancillary products: windshield washing fluids, degreasing fluids, etc.

Testing capabilities

A wide range of test methods is available, including:

- Hot and cold viscosity measurements
- Analysis of pollution particles and particle filters
- The oxidation of lubricants, by Fourier Transform Infra Red spectroscopy (FTIR), measurement of the AN, BN indices
- Measurement of the water content in the fuel
- Analysis of fuel contamination: sediments, pollution, bacteriological attack
- Measurements of diesel fuel dilution in lubricants, using gas chromatography (GPC)
- Adblue® analysis (aqueous solution of urea)
- Physico-chemical analyses on fluids

Examples of services performed

The quality of the fluids used in the vehicles is a key factor for reliability and performance. The analysis of an engine oil will, for instance, reveal possible problems of wear or overheating. Solicited by the quality and after-sales departments of Renault Trucks, the Lyon laboratory therefore went to inspect the diesel fuel storage tanks at a transport company in response to recurrent problems relating to the poor quality of the fuel and its negative effect on the operation of the truck engines.

After analysis, it was demonstrated that the presence of water in the fuel promoted bacterial development, causing accelerated fouling of the filters. The customer was advised to maintain and clean the tanks.

Similarly, Materials Technology Lyon regularly analyses oil samples during the development of new powertrain systems to evaluate and monitor their behaviour.

COATINGS AND SURFACE TREATMENTS



Nature of the components concerned

- There are uses for coatings and surface treatments throughout a vehicle:
- Chassis
 - Fasteners and standard parts
 - Body in white
 - Interior or exterior plastic parts
 - Powertrain components : engine, axles, transmissions, gearboxes

Coatings are naturally most often used for the aesthetic function, but also for protection against corrosion, improved product durability, or to provide a surface with specific mechanical characteristics (friction coefficient, for instance).

The different types of materials and processes used are:

- Liquid paint and powder paint
- Cathaphoresis (E-Coat)
- Metallic coatings, deposited electrolytically or by immersion
- Surface treatment on metals (degreasing, phosphating)
- Surface treatment on plastics (degreasing, flame treatment, plasma, etc.)

Testing capabilities

Tests are based on:

- Measurement of coatings adhesion
- Aging tests (humidity, heat, chemical resistance)
- Resistance to UV light (accelerated aging, and natural aging in Florida)
- Stonechip resistance
- Flexibility and hardness of the coatings
- Corrosion resistance: salt spray, accelerated cyclic corrosion
- Measurement of coating thicknesses (microscopy, non-destructive tests)
- Coating appearance measurements: colorimetry, gloss, tension, distinction of image (DOI), etc.
- A research and development paint line capable of simulating all industrial process parameters

Examples of services performed

The services offered by Materials Technology in the domain of coatings and surface treatments fit in the straight line of the general missions of this entity: cutting edge advanced engineering, technical solutions development, non-conformity expertise, training and technical assistance, participation in industrial projects, installation audits.

For example, the laboratory makes recommendations on paint processes and paint systems used on the assembly lines. Its mission also includes assistance in defining the materials to use, the fine tuning of industrial parameters and the development of the validation plan with the suppliers or factories concerned.

In the case of purchased parts, Materials Technology Lyon is sometimes solicited by the competent departments to verify their conformity with regards to engineering specifications. If tests reveal a problem, the laboratory is able to advise on solutions or improvements relating to the production materials and processes.

TEXTILES



Nature of the components concerned

- Used in the vehicle cabs, this category of materials includes:
- The side and roof trims
 - The fabric on seats, benches and bunks (velvet, warps/wefts textiles, 3D, nonwoven etc.)
 - Leathers and Alcantara
 - Plastic coated textiles
 - Curtains

Testing capabilities

- The test benches include:
- Mechanical tests (wear, traction, tear resistance...)
 - Aging Tests (aging under the effect of heat, light-resistance, fluffing and pilling tendency)
 - Spot or stain resistance, and cleanability
 - Chemical resistance (colorfastness and rubbing resistance)
 - Specific tests (opacity, indentation marking)
 - Flammability

Examples of services performed

Upon request Materials Technology Lyon can verify the conformity of the textiles proposed by the suppliers to the specifications stipulated by the Volvo Group. Its role also consists in proposing to the suppliers, to the engineering and purchasing departments orientations with regard to new fabrics and their thermal, wear resistance, UV aging or comfort properties. Materials Technology Lyon has also developed skills in sensorial analysis: feel, odor, color, appearance of the materials.

The laboratory participates in the AB Volvo textile experts group, develops new test methods with Volvo Trucks and Mack Trucks by conducting cross-tests on stain or abrasion resistance for improved customer satisfaction, and is also working with suppliers to develop innovative new materials.

When the factory of one of its textile suppliers suffered a fire, Materials Technology Lyon stepped in urgently to determine, in relation with this company and with the Group purchasing division, how to assure fabric production by a different site. The operation consisted in validating the first batches produced, before launching volume production.

Materials Technology also stepped up, on several occasions, to participate in problem-solving for quality-related issues: the strength of seat cover seams, staining of the textile while assembling the seat in the vehicle, insufficient opacity of the curtains, thermal comfort of the seats, problems with textile production quality. These expert appraisals are conducted on behalf of various clients: factories belonging to the Volvo Group, engineering department, supplier quality assurance department.

GLAZING



Nature of the components concerned

- These are components in glass or plastic installed in vehicle cabs:
- Windshield
 - Rear mirrors
 - Rear or side windows
 - Sun roof

Testing capabilities

- The following functional tests are performed:
- Measurement of black enamels light opacity
 - Scratch resistance
 - Impact resistant
 - Mechanical tests and behaviour laws
 - UV resistance (Weather-o-Meter)
 - Adhesive bonding

GLAZING

Examples of services performed

In collaboration with glass suppliers, Materials Technology Lyon worked on specifications common to the different brands of trucks manufactured by AB Volvo Group. This research assignment also includes new materials development, in particular polycarbonate glazing to reduce the weight of the vehicles.

Another example of the expertise the laboratory proposes is found in the assistance provided to engineering departments in the domain of the mechanical behavior of glass at high rate of deformation. These properties are important for performing reliable calculations of crash resistance on the truck cabs.

Materials Technology also can monitor preventive action plans to assess and avoid risks during a change of supplier, recommending adhesive bonding processes and materials on the glazing, or rationalizing and optimizing the assembly stations in the factory.

POLYMERS



Nature of the components concerned

Three major classes of polymer materials can be distinguished: thermoplastics, thermosets, and elastomers. These materials are used for multiple applications on the vehicles. Here are the main functions concerned:

- Vehicle cab interior and exterior parts
- Technical components on the chassis (tanks, brake hoses, battery boxes)
- Technical components for the engine function: seals, engine support, oil sump, cylinder-head cover, hoses, etc...

Testing capabilities

The test resources implemented are:

- Mechanical test equipment (traction, flexion, impact, wear, scratch & mar, etc)
- Physico-chemical analysis resources
- Aging simulation under the effect of ultra-violet light, heat and/or humidity

Examples of services performed

Ahead of production, Materials Technology Lyon took part in some very varied missions. Trucks of the Group's three brand names (Volvo Trucks, Renault Trucks, Mack Trucks) have been equipped since the Euro 4 standard came into effect with a new nitrogen oxide suppression system using urea. Materials Technology therefore, at the request of Volvo 3P, studied the urea resistance of the materials.

On the range of engines, an elastomer wire-guide posed an oil tightness problem. After analysis, the laboratory discovered the root cause of the leak (shrinkage of the wire-guide). We made two recommendations to Volvo Powertrain: upstream, change the design of the part; downstream, use a sealant as a remedial solution to avoid having to change all of the parts involved.

General specifications were defined for all elastomer seals used in the cabs of all trucks belonging to the AB Volvo Group. Materials Technology was brought in very early in the process, because of the technical complexity involved. This study resulted in improvements in the test methods, by defining a collection of best practices which were then shared within the Volvo Group.

COLORIMETRY



Nature of the components concerned All molded in color plastic parts, textiles and all painted parts (plastic or metal surfaces) present on vehicle interiors or exteriors.

Testing capabilities

- Color matching by skilled colorists. The human eye paradoxically is capable of distinguishing very minor differences in shade, even if measurements may be obtained later by machine testing for confirmation.
- Light booths
- Spectro-colorimeters
- Gloss measurement
- Instruments to measure the 'orange peel' and the Distinction Of image (DOI) of coatings

Examples of services performed

Materials Technology provides added value in the domain of colorimetry through the implementation of a process for approving and developing new colors that involves supervising transversal working groups from our suppliers, sales & marketing departments and production units. The laboratory also develops inspection and quality assurance processes to guarantee a good color harmony between the different vehicle components and verify their uniform aging over time. Customers of the AB Volvo Group often demand specific, customized colors for their product ranges. In such cases, Materials Technology Lyon acts as a consultant, proposing the materials and processes best suited for the industrial production. Once production is under way, the laboratory may, at the customer's request, have to inspect and evaluate the efficiency of installations and processes to ensure compliance with the specifications.

DURABILITY OF THE MATERIALS



Nature of the components concerned

- Paint and coatings
- Trims
- Fabrics
- Plastic and elastomer parts

Testing capabilities

- Thermal or climatic aging, thermal oxidation
- Physico-chemical degradation of the materials – for instance, deterioration of the rubbers under the effect of ozone
- Measurement of the evolution of the mechanical properties and of the appearance of the materials during their aging
- Non metallic materials wear, abrasion, scratch and mar resistance, staining
- Aging of the materials (UV light) in the natural environment (e.g. Florida) or in the artificial environment (Weather-o-Meter)

Examples of services performed

Materials Technology can recommend a materials selection based on required specifications, develop new test methods, undertake expert investigations of components that appear to be showing sign of premature aging or failure due to the effect of light, temperature or conditions of use. The laboratory also carries out a technology watch on the evolution of the products proposed by the suppliers, analysis of the competition and is performing field studies on a regular basis (Meeting with end customers, analysis of used vehicles etc...) The laboratory act as technical consultant within Volvo Group Business Areas to improve the perceived quality of the products.

ADHESIVES AND SEALANTS



Nature of the components concerned

The main functions using adhesives and sealants are:

- Fasteners (threadlocking, thread sealing etc.)
- Engine or cab sealing
- Body in white (structural & adhesive bonding, weld-bonding, stone chip protection, sound damping)
- Vehicles' interior trims (windshield bonding, glazing, plastic components, etc.)
- Badges, emblems, monograms and decors affixed to the cab interior or exterior
- Labels, decorative films, double-sided adhesive tapes

Testing capabilities

The development of components using adhesives and sealants requires the implementation of aging tests in environmental conditions relating to:

- Temperature
- Humidity
- Light (UV)
- Surrounding materials (fluids, metals, polymers), by studying their compatibility.

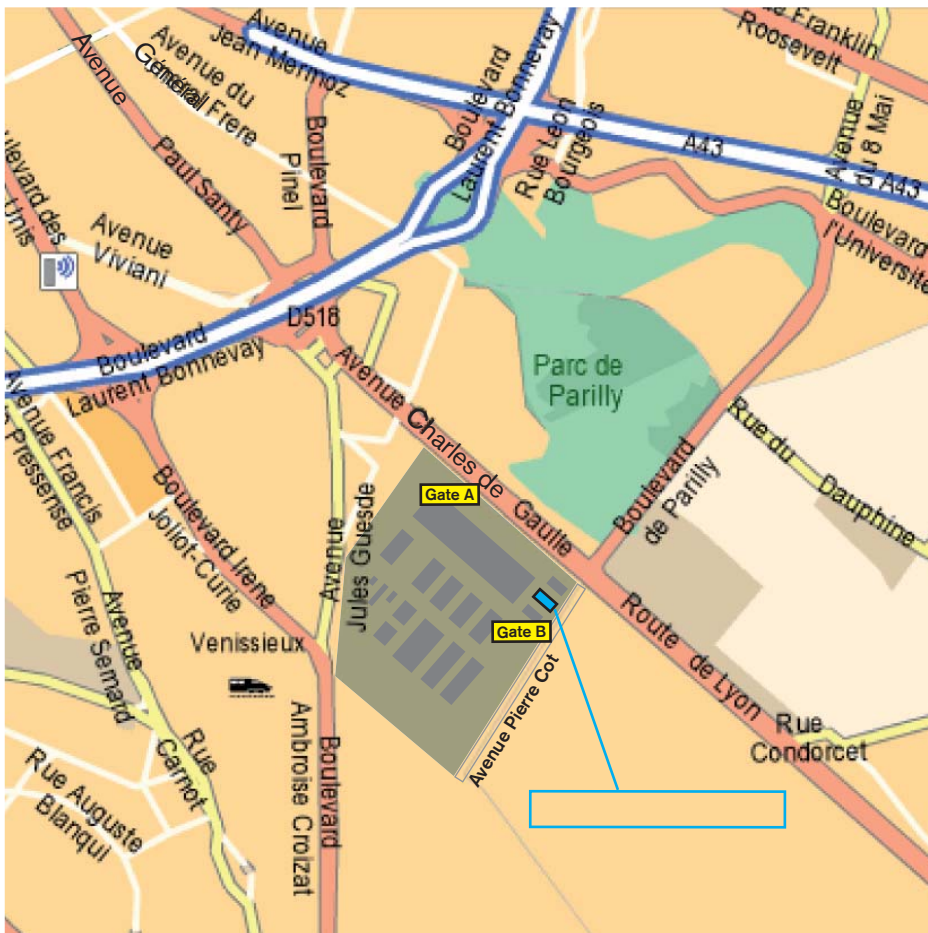
These aging tests are generally followed by an assessment of the mechanical properties: shear, tear or creep resistance, peeling tests, tightness, failure mode.

Examples of services performed

In relation with the engineering, quality and production departments, Materials Technology Lyon is capable to select the materials to be used, to define and follow up of the test plans, and to validate the industrial processes in the user sites.

Hence the Renault Trucks factory in Blainville, France, benefited from advice to review and improve the bonding process used on Magnum trucks SMC (Sheet Molding Compound) body panels in order to meet the new environmental standards and eliminate the use of any hazardous (toxic or flammable) products.

Materials Technology



Your contact at Materials Technology

Materials Technology Lyon 402 Avenue Charles de Gaulle

API : VNX AB1 1 02

mt@volvo.com

69635 Venissieux

Fax : +33 472 968 707

France

VOLVO