FRIALIT®-DEGUSSIT® Oxide Ceramics

Applications Spectrum






FRIATEC

PRODUCTS MADE FROM TECHNICAL CERAMICS FRIALIT®-DEGUSSIT® – THE MATERIAL FOR ELECTRICAL ENGINEERING AND FOR OTHER DIVERSE ENGINEERING APPLICATIONS VERGING ON PHYSICS.

FRIALIT®-DEGUSSIT® CERAMICS – THE MATERIAL BOTH FOR THE PRESENT AND FOR THE FUTURE. WHEREVER THERE IS AN EXTREME ENVIRONMENT FOR OPERATION OF DEVICES, INSTRUMENTS AND INSTALLATIONS.

THAT IS WHERE YOU FIND FRIALIT®-DEGUSSIT®.

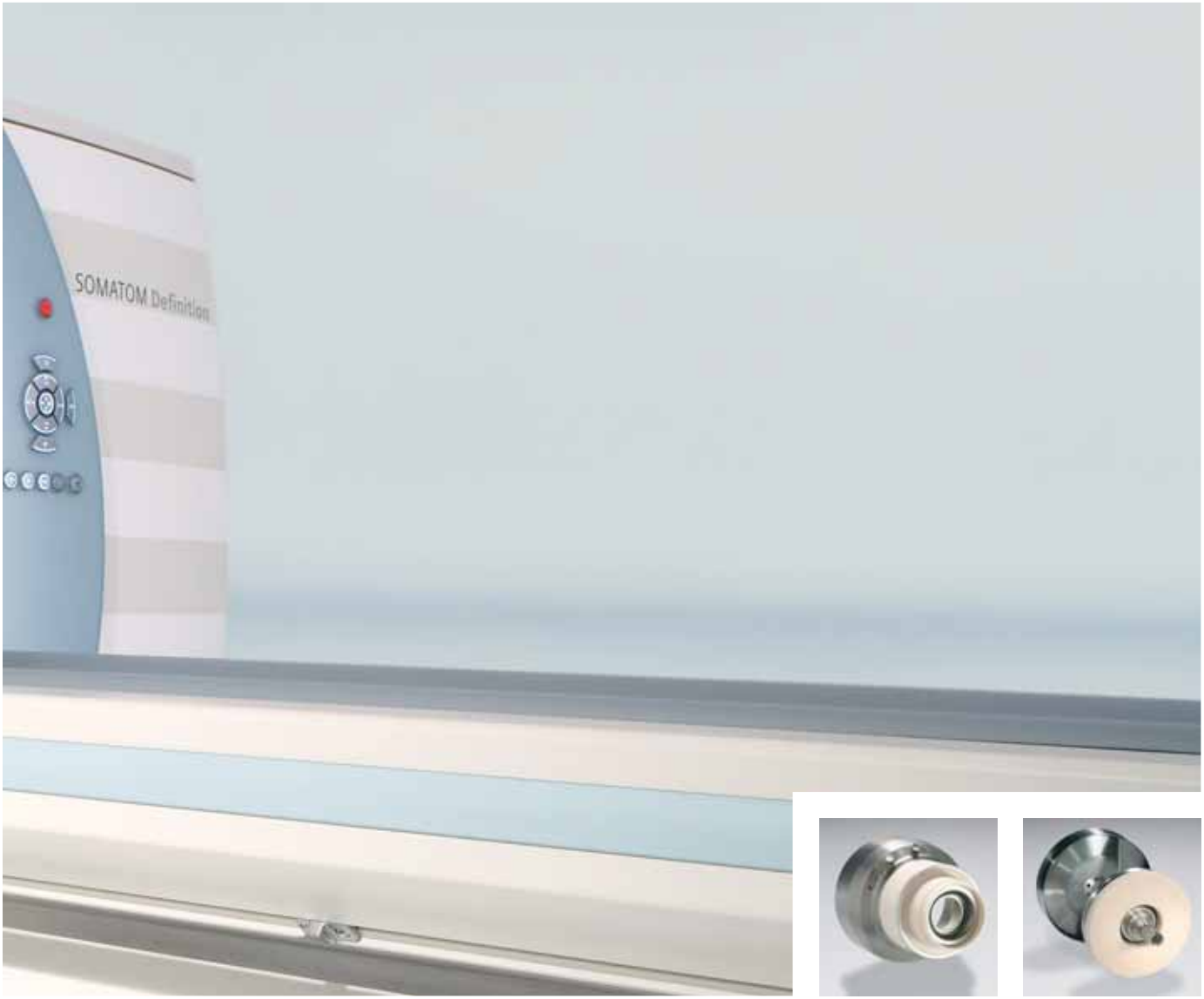
WITH FRIALIT®-DEGUSSIT® EVERYTHING BECOMES POSSIBLE.

CERAMIC-METAL PARTS ARE THE BASIS FOR BUILDING UP PHYSICS AND ENGINEERING DEVICES SPECIFICALLY INTENDED FOR EXTREME OPERATING ENVIRONMENTS. FRIALIT®-DEGUSSIT® TECHNICAL CERAMICS AND A TEAM OF EXPERIENCED PROFESSIONALS FROM FRIALIT®-DEGUSSIT® WILL ALWAYS ASSIST IN FINDING THE PROPER SOLUTION FOR A PROBLEM OF ANY COMPLEXITY IN THE DEVELOPMENT OF YOUR OWN PRODUCTS, ENABLING YOU TO ATTAIN THE MAXIMUM EFFICIENCY IN ANY FIELD OF TECHNOLOGY. THE OUTCOME OF THIS FRUITFUL COLLABORATION WOULD BE CERAMIC-METAL PARTS CREATED TO MEET THE STRICTEST REQUIREMENTS AND APPLICATION CRITERIA.

WITH FRIALIT®-DEGUSSIT® CERAMIC-METAL PARTS USED, THE OPERABILITY OF DEVICES AND INSTALLATIONS WOULD NEVER BE AFFECTED EVEN BY THE MOST EXTREME ENVIRONMENTS LIKE EXTREME HIGH TEMPERATURES OR HIGH STRAIN.

TECHNICAL CERAMICS AS A SOUND FOUNDATION FOR MEDICAL TECHNOLOGIES. THE X-RAY IMAGE AMPLIFIER: THE MAXIMUM RESOLUTION WITH THE MINIMUM RADIATION DOSE.

The amplifier of X-ray images – the very core of computerized tomographs. It enables the physicians to come up with a proper diagnosis with the minimum irradiation of the patients.

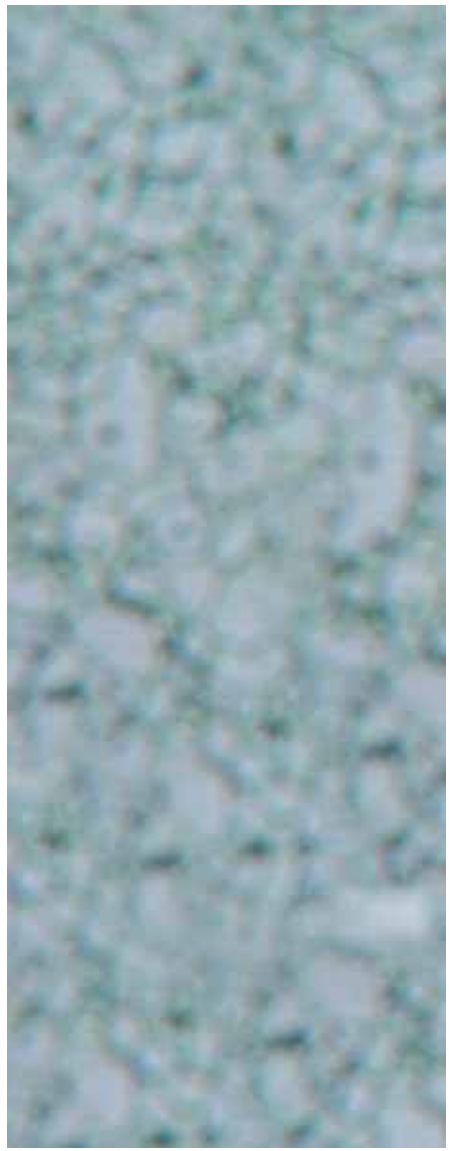


The key constituent elements of the X-ray image amplifier and the X-ray sources are components of ceramic materials developed by FRIALIT®-DEGUSSIT® professionals jointly with the customers' engineers. Products made from ceramic materials are the sum total of breakthroughs in the most innovative technologies of the last decades, and the outcome of intense development and of experience of applied use in the customers' best interests.

RELIABILITY OF APPLICATION IN AIRCRAFT AND SPACE TECHNOLOGIES. PRESSURE SENSORS DELIVER INFORMATION OF CRITICAL SAFETY IMPORTANCE.

The properties exhibited by ceramic components under bending loads make them indispensable constituents of measurement systems in aircraft and space technologies. Abrupt pressure variations are the major testing load for any aircraft or spacecraft. Sensor membranes made of FRIALIT®-DEGUSSIT® ceramic materials detect critical values and generate alarm signals as a dependable safeguard for both aircraft crews and passengers.

The high resolution of the registered signal is due to the hysteresis-free bending of the super-thin sensor membranes. The precision to which these membranes themselves are made is assured by the advanced technologies worked out by the FRIALIT®-DEGUSSIT® specialists who are fully responsible for the final product quality - starting with the ceramic material pre-treatment and culminating in the last processing stages.



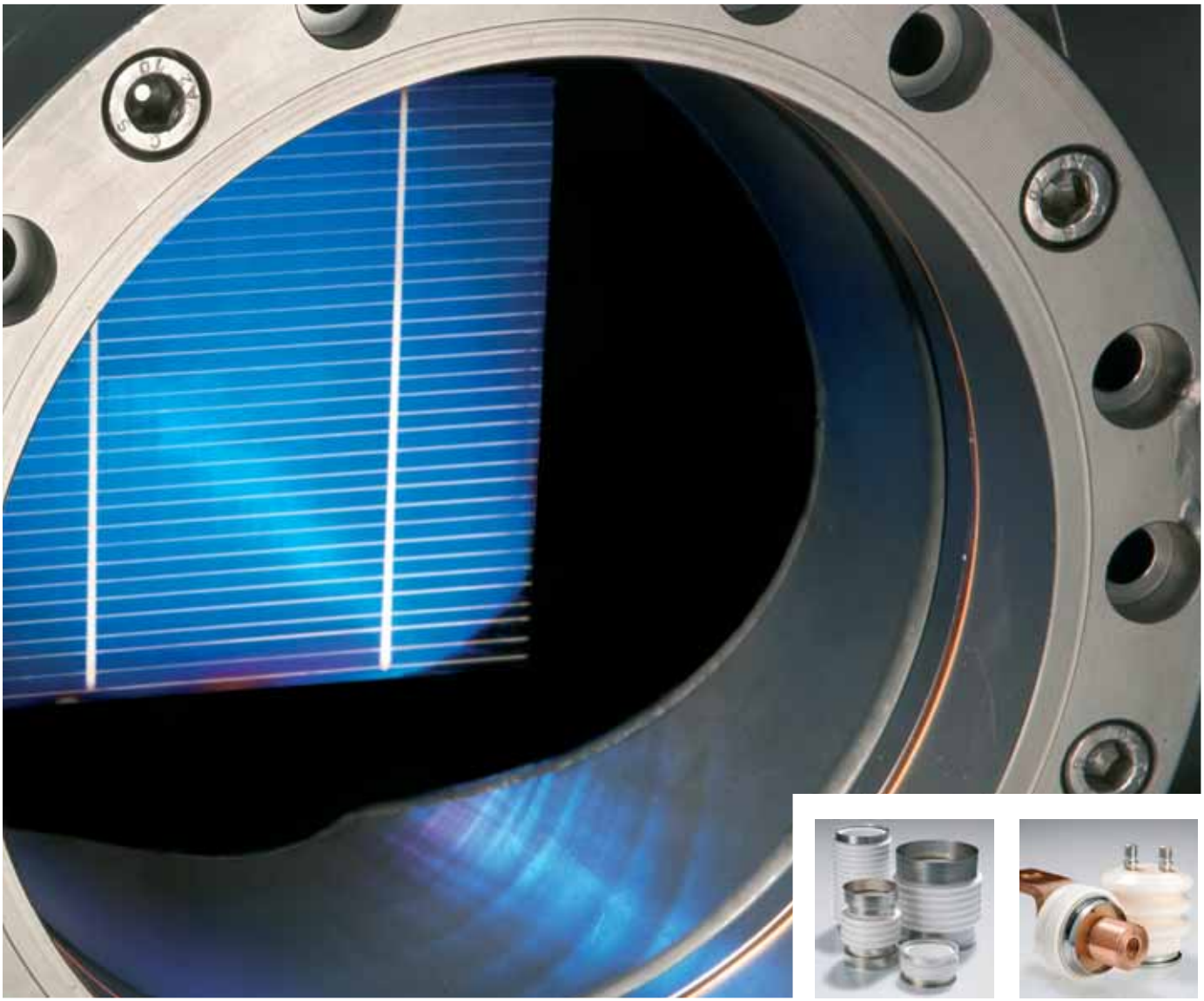
ACCELERATOR COMPONENTS FOR ELECTRONIC MICROSCOPES WARRANT FINE RESOLUTION

Focusing arrangements in electronic microscopes must be fabricated with a precision down to but a few microns. Only such precision would allow the conduct of studies regarding diverse objects of science and technology under a microscope with high resolution and excellent clarity.

Vacuum chambers of FRIALIT®-DEGUSSIT® ceramics for charged particle accelerators are a guarantee of minute tolerances owing to the stability of their geometric shape in combination with top electric insulation properties.

INNOVATIVE TECHNOLOGIES ALWAYS STEM OUT OF OLD TRADITIONS. TECHNOLOGIES OF PRODUCTION IN DEEP VACUUM NECESSITATE THE USE OF ADEQUATE MATERIALS.

Installations for fabrication of photocells and semiconductors use specific processes that can take place exclusively under the conditions of deep vacuum. Such conventional materials as glass and porcelain are driven beyond their capabilities in such an environment.



Electric lead-in insulators and insulating sleeves of ceramics are a true asset in the implementation of most Hi-Tech processes. FRIALIT®-DEGUSSIT® ceramic materials, unlike other ceramics, retain their top insulating properties even at extremely high temperatures.

COMPUTER INDUSTRIES HAVE PUT A HIGH STAKE IN MICROCHIPS. OXIDE CERAMICS ALONE CAN PROVIDE THIS CAPABILITY.

FRIALIT®-DEGUSSIT® materials have become a must in the development and fabrication of chips of ever smaller dimensions. It is compulsory to measure and test computer modules in the micron range prior to putting them into service.

Such properties as the geometric shape-stability even at extremely high temperatures make products made from oxide ceramics the required super-precision components.

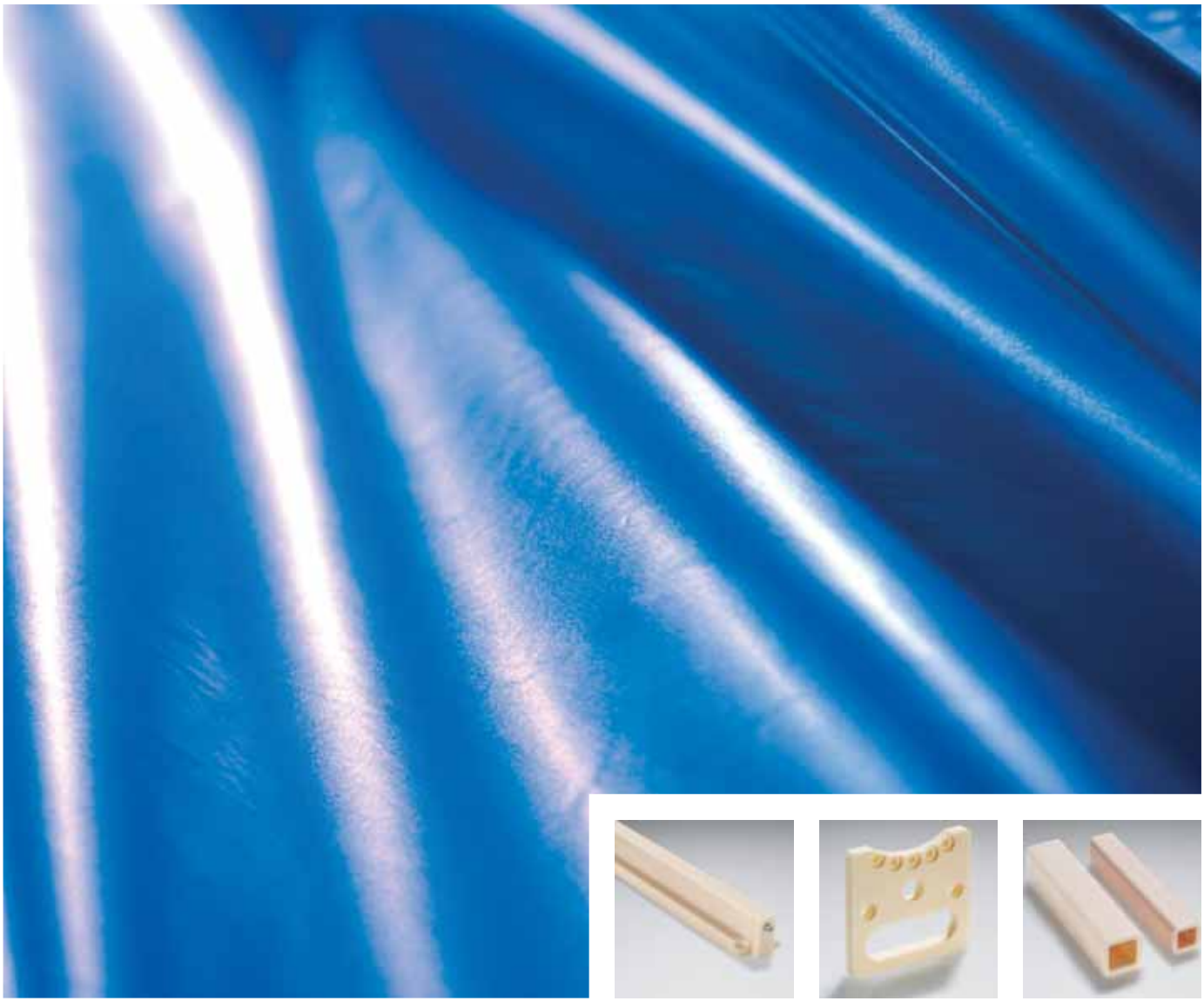
PRODUCTS MADE FROM FRIALIT®-DEGUSSIT® CERAMIC MATERIALS FOR HIGH-TEMPERATURE TECHNOLOGIES.

HIGH TEMPERATURES CONSTITUTE A TEST FOR ANY MATERIAL; MATERIALS INTENDED FOR SUCH TECHNOLOGIES MUST MEET THE STRICTEST REQUIREMENTS WITH REGARDS THEIR QUALITY AND INTRINSIC PROPERTIES. AN APPROPRIATE SOLUTION TO THIS VEXING PROBLEM IS THE USE OF COMPONENTS OF FRIALIT®-DEGUSSIT®-MATERIALS WITH THEIR HEAT RESISTANCE TO 1950 °C.

ENGINEERS OF R&D AND PROJECT DESIGN INSTITUTIONS, IN THEIR CREATION OF INNOVATIVE PRODUCTS AND ALSO IN TRADITIONAL FUNDAMENTAL STUDIES, HAVE BEEN BECOMING EVER MORE INCLINED TO USE COMPONENTS OF FRIALIT®-DEGUSSIT® CERAMIC MATERIALS, SPECIFICALLY WHERE APPLICATIONS IN EXTREMELY TRYING ENVIRONMENTS ARE CONCERNED. COLLABORATION WITH SPECIALISTS OF FRIALIT®-DEGUSSIT® DIVISION OF THE FRIATEC® AG WORKS HAS GIVEN LIFE TO TECHNICAL PARTS OFFERING UNUSUALLY HIGH TEMPERATURE RESISTANCE IN COMBINATION WITH FINE ELECTRIC INSULATION PROPERTIES AND REMARKABLY HIGH RESISTANCE TO CORROSION.

IN THEIR HANDLING AND PROCESSING, FILMS AND PAPER IN THE PRINTING INDUSTRIES ALSO COME FREQUENTLY INTO CONTACT WITH PRODUCTS MADE OF FRIALIT®-DEGUSSIT® TECHNICAL CERAMICS.

These could be guiding strips of ceramic materials that make possible very high velocities of film or paper movement, due to their finely ground surface and the minimized tolerances of their geometric dimensions and positioning.



The use of components of FRIALIT®-DEGUSSIT® ceramics further allows the handling of abrasive films or even films highly susceptible to mechanical damage. The high velocity tolerated by technical ceramics matched by their top quality make them truly indispensable in digital printing operations.

IN GLASS PRODUCTION, FRIALIT®-DEGUSSIT® CERAMICS WITH THEIR INCOMPARABLE PROPERTIES PROFIT FROM THEIR ADVANTAGES “TO THE UTMOST”.

Thermal resistance up to 1950 °C is the compulsory requirement to be met by parts when they are to be used in the glass industry.

The use of ceramics supplies high accuracy to temperature measurements in glass melting and in production of glass ceramics. FRIALIT®-DEGUSSIT® ceramics is a chemically inert material, so that operational safety is completely assured in the processing of any chemical substances.

WHEN VOLTAGE FAILS IN THE NETWORK OR MAINS, OR IN AN INDEPENDENT SYSTEM, POWER SUPPLY WILL BE PROVIDED BY FUEL CELLS.

Insulation of individual surfaces of a fuel cell from one another, and provision of the required spacing between them is effected by using ceramic spacers.

Fuel cells are subjected from the inside to super-extreme thermal, chemical and mechanical loads. Strips and connection components operating under unusually high loads have been developed by specialists of the FRIALIT®-DEGUSSIT® Division jointly with the customers.

LIGHT IN MASS PRODUCTION. THERMAL RESISTANCE PLAYS A DECISIVE ROLE IN MANUFACTURE OF ELECTRIC LAMPS.

Blocks and shaping rollers of FRIALIT®-DEGUSSIT® ceramic materials are a guarantee of invariably high accuracy due to their high corrosion resistance.

Products made from FRIALIT®-DEGUSSIT® ceramics are components of extended durability that minimizes the downtime. The advantages of the use of components of FRIALIT®-DEGUSSIT® ceramic materials become most evident, first and foremost, in the series mass production, owing to their fine electric insulation properties, resistance to temperature variations and high corrosion resistance “highly corrosion-proof”.

PRODUCTS MADE FROM FRIALIT®-DEGUSSIT® CERAMICS IN MECHANICAL ENGINEERING.

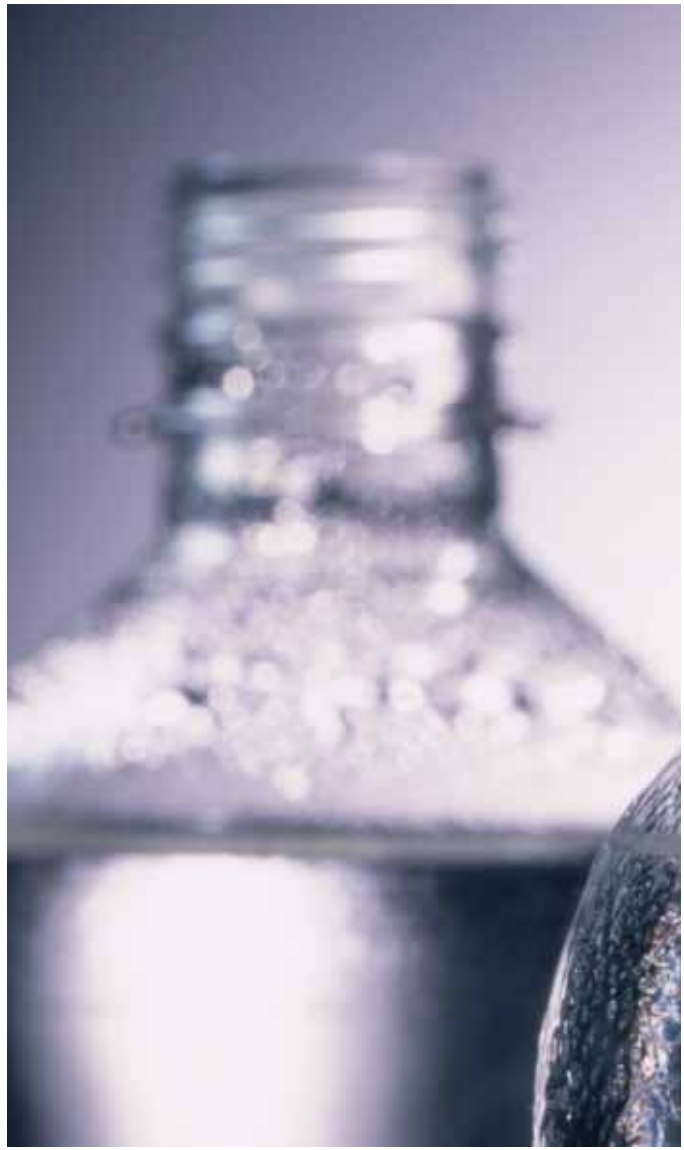
IN DEVELOPING STATE-OF-THE-ART EQUIPMENT, ENGINEERS HAVE BEEN USING COMPONENTS OF CERAMIC MATERIALS WITH INCREASING FREQUENCY. IN THIS, THE MATERIAL'S ADVANTAGEOUS QUALITIES ARE EXPLOITED TO THE MAXIMUM, YIELDING “THE MOST” OPTIMIZED RESULTS.

COMPONENTS OF TOOLS AND MACHINES ARE LONG SERVING WHILE BEING READILY CLEANABLE OWING TO THEIR SURFACE QUALITIES. UNLIKE OTHER MATERIALS, PRODUCTS MADE FROM FRIALIT®-DEGUSSIT® CERAMICS ARE CAPABLE OF "ADAPTING" TO THE EVER HIGHER REQUIREMENTS OF THE WORLD OF HIGH-TECH APPLICATIONS. FRIALIT®-DEGUSSIT® CERAMICS SPECIALISTS JOIN THE CUSTOMERS' STAFF IN REPEATEDLY FINDING OUT AND PERFECTING THE NEW ASPECTS AND OPTIONS OF APPLICABILITY OF PRODUCTS MADE FROM CERAMIC MATERIALS. THIS IS THE ONLY WAY OF KEEPING PACE WITH THE RAPIDLY CHANGING PRESENT-DAY MARKET AND SECURING SUCCESS IN BUSINESS.

COMPONENTS OF MEASURING EQUIPMENT OF FRIALIT®-DEGUSSIT® CERAMIC MATERIALS – ACIDS HAVEN'T GOT A CHANCE OF DAMAGING YOUR TOOLING.

Apart from absolutely accurate measuring of the most diverse component fluids, parts of ceramic materials assure exceptional process cleanliness. Hygiene is a requirement of the highest order in the production of medicines.

Pump plungers/pistons of FRIALIT®-DEGUSSIT® ceramics are a guarantee of a perfect fit without the use of sealing rings. Furthermore, owing to their specific surface properties, ceramic plungers/pistons are easy to clean and sterilize. The engineers designing filling, pre-treatment and blending units have been utilizing to the full effect the advantages offered by the surfaces of parts of ceramic materials, and the KNOW-HOW of experts in FRIALIT®-DEGUSSIT® ceramics.



ACCURACY AND DEPENDABILITY: MAGNETIC INDUCTION FLOW METERS.

The match of FRIALIT®-DEGUSSIT®ceramics with platinum electrodes is behind the exceptionally high accuracy of measurements even in a continuously varying process environment.
The high rate of availability and accuracy of information being obtained is what is needed to become the leader. In the food and chemical industries, expediancy, accuracy and reliability of process technologies will be guaranteed through the use of products made of FRIALIT®-DEGUSSIT® ceramics.

The requirements put before and met by these materials are: high electric insulation properties backed up by being unaffected by high pressure values and a high degree of corrosion resistance.

THE AUTOMOTIVE INDUSTRY IS ALWAYS IN NEED OF EQUIPMENT OPERABLE TO FULL CAPACITY. THE ANSWER TO THIS TASK: USING PRODUCTS MADE FROM FRIALIT®-DEGUSSIT® CERAMIC MATERIALS.

Welding pins of FRIALIT®-DEGUSSIT® ceramics provide for top accuracy of relative positioning of automotive body parts being joined by welding. The use of drawing dies of FRIALIT®-DEGUSSIT® ceramics provides for the elimination of costly finishing operations following the metal-forming processes.

Ceramics with their exceptional anti-friction qualities can render as completely obsolete the use of any additional lubricants. Hence, with the tooling upgraded with parts and components of FRIALIT®-DEGUSSIT® ceramics, sizable savings on cleaning equipment become an option.

PRODUCTS MADE FROM CERAMICS INCORPORATED IN THE EQUIPMENT OF THE CHEMICAL INDUSTRY DRASTICALLY CUT DOWN LOSSES ON ACCOUNT OF FLUID LEAKS.

While a ceramic protection screen in the magnetic coupling acts as a leakage barrier in a chemical pump, the anti-friction properties of ceramic pistons of high-pressure pumps are a guarantee of long, uninterrupted operability of other components providing leakage control.

Owing to their unique traits, products made from FRIALIT®- DEGUSSIT® ceramic materials have become an inherent and indispensable constituent in the development, evolution and introduction of the most advanced technologies. Engineering components of ceramic materials developed and designed byи FRIALIT®-DEGUSSIT® specialists exclusively to the customers' benefit have become the guarantor of long service life of the customer's equipment and of monopoly leadership in the market regarding production of engineering ceramic parts.

IN MAKING AND PROCESSING OF PAPER, FRIALIT®-DEGUSSIT® CERAMIC COMPONENTS HAVE BEEN SOLVING THE PROBLEMS OF WEAR RESISTANCE OF THE COSTLY AND VALUABLE MACHINERY.

The high degree of wear resistance of mechanical components in the pulp and paper industry and in the handling of paper in large printing houses, analogous to the components of packaging equipment where all operations are high-speed, has grown into a decisive factor of assuring quality and

cost-saving production. An adequate solution to this demanding task is the use of products made from FRIALIT®-DEGUSSIT® ceramics.
The FRIALIT®-DEGUSSIT® material is characterized by exceptionally high wear resistance and geometric shape stability. Machinery parts of FRIALIT®-DEGUSSIT® ceramics support a long service life of the equipment. Thanks to the material's unique load-bearing capacity, it becomes possible to significantly speed up the production processes in the pulp-and-paper industry.

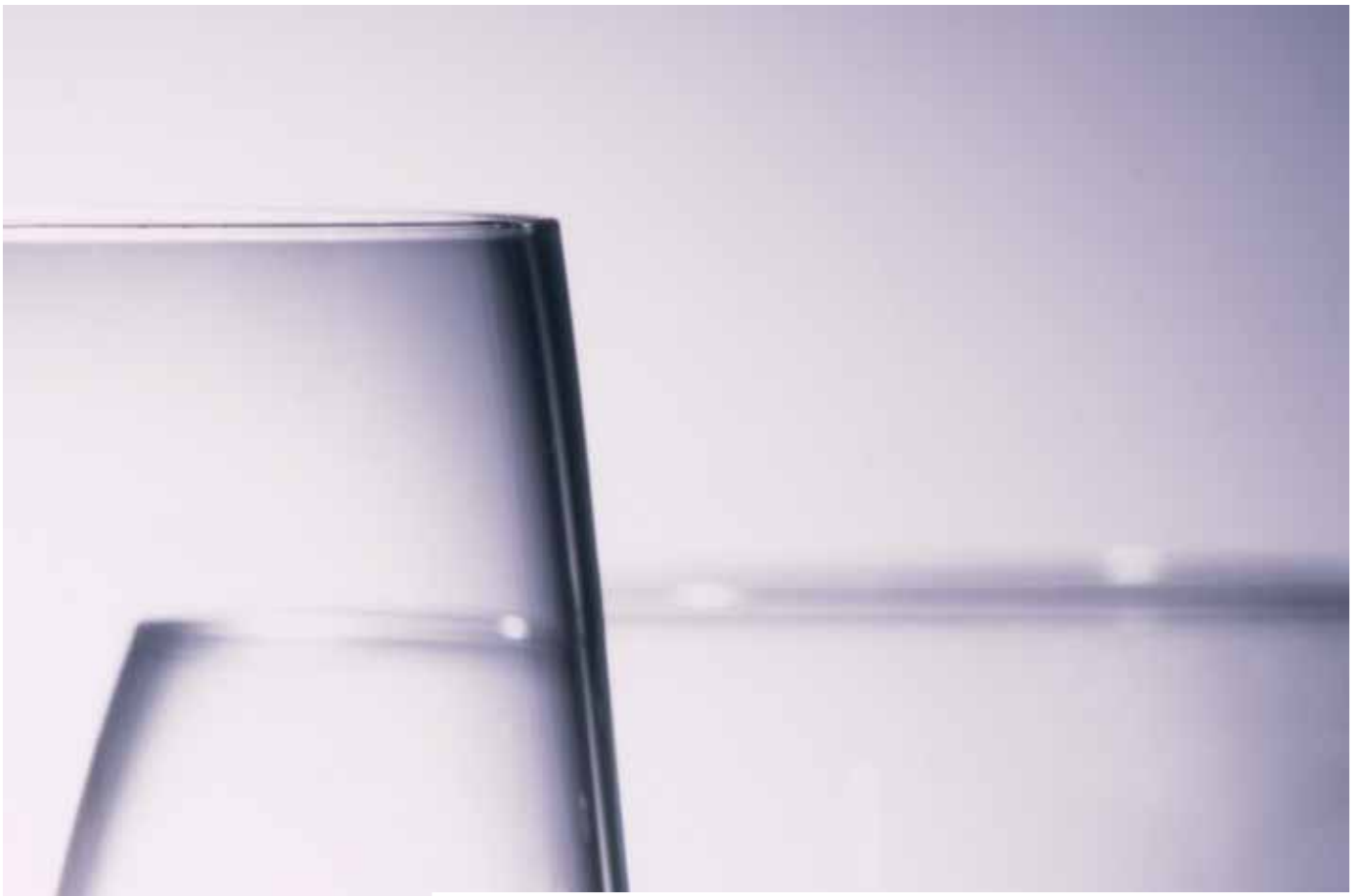
FRIALIT®-DEGUSSIT® CERAMIC MATERIALS FOR SURFACE FINISHING.

...MORE OFTEN THAN NOT, THE FINAL GRINDING DETERMINES THE FINAL QUALITY.

PROFESSIONALS ENGAGED IN OPERATIONS OF FINISHING OR UPGRADING OF GLASS, PORCELAIN OR HARD ALLOY ARTICLES HAVE BEEN REGULARLY USING "EVER MORE OFTEN" THE FRIALIT®-DEGUSSIT® GRINDING TOOLS BECAUSE®-DEGUSSIT® TOOLING OFFERS EXCEPTIONAL WEAR RESISTANCE, APPLICATION VERSATILITY AND ABILITY TO DEAL WITH EVEN THE HARDEST SURFACES.

WHEN HARD SURFACES ARE TO BE WORKED, TOOLING OF FRIALIT®-DEGUSSIT® CERAMICS FEATURES UNRIVALLED ADVANTAGES.

Particularly well aware of the durability of these high-quality tools are manufacturers of precision mechanical devices and units, e.g. in watch-making, in the optical and glass industries.

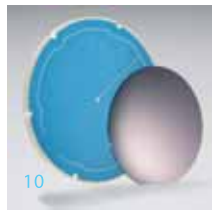


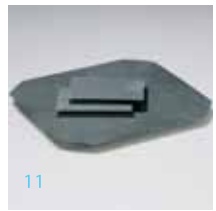
Polycrystalline sintered ruby features a hardness close to the hardness of diamond and can be used for diverse kinds of surface machining of articles and components.

POLISHING THE HARDEST SURFACES TO HIGH LUSTER: AGGLOMERATE RUBY REMAINS THE UNSURPASSED POLISHING MATERIAL WHERE DIAMOND-LIKE LUSTER IS TO BE ACHIEVED.

Agglomerate ruby – where the optimized hardness is matched by uniquely high stability of geometric shape. In grinding, lapping, honing and roller-burnishing, beside the top quality of surface finishing, agglomerate ruby vividly displays its multiple advantages over conventional grinding tools that have a tendency to wear rapidly under mechanical effects and lose quickly their operability.

The Supply Program of FRIALIT®-DEGUSSIT® grinding tooling includes tools for specific applications in precision mechanics and instrument fabrication, as well as in the glass, porcelain, ceramic and jewelry industries.





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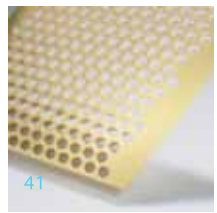

FRIALIT®-DEGUSSIT® Oxide ceramics for:
Eiectrical Engineerig
High Temperature Technology
Mechanical Engineering
Surface Finishing




COMPETENCE PLUS RESPONSIBILITY

Our customers rightly expect first class performance with lasting value. Besides our competence we also assume the responsiblilty for achieving that.
Please ask for evidence: FRIALIT®-DEGUSSIT® is the technology – and market-leader in ceramic materials of the 21st Century.

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