ZRUNEK
GUMMITECHNIK

Zrunek Gummiwaren GmbH

Company

Presentation

Who we are, what we do .....

Zrunek Gummiwaren was founded in 1947 by chartered engineer Eduard Zrunek, inspired by his experience as laboratory manager and managing director of the Semperit subsidiary Matador near Bratislava. Today the company is run by the third generation, Dr. Ulrich Zrunek.

Our areas of operation

Zrunek's activities extend from custom formulation in our own laboratory, through comprehensive mixing capabilities, to the manufacture of the end-product: this comprises a broad spectrum of production capabilities. Our main business areas are the in-house development of compounds and the manufacture of almost any rubber part, especially the production of fluoroelastomer (Viton®) parts, and also the retail of stock parts.

Development and manufacture of production runs and customized solutions

We are fully equipped with state-of-the-art rubber industry machinery, including presses, injection moulding machines, extruders, autoclaves, grinders and above all our in-house mixing plant, and we provide our customers with flexible and independent production units. From in-house development in our laboratory, to the manufacture of customized solutions, small and medium production runs are one of the special strengths of Zrunek.

Retail of standard parts

We permanently carry a wide range of stock, which guarantees the immediate availability of standard items. By utilising our long-standing relationships with suppliers and business partners, we also ensure competent and reliable handling of complete production runs for our customers.

Customer focus

Because we are continuously extending and improving our service to customers, our well-established client base is steadily growing. Our desire to meet and anticipate your needs and to ensure customer satisfaction, in addition to our skilled and experienced team form our most important assets.

ZRUNEK
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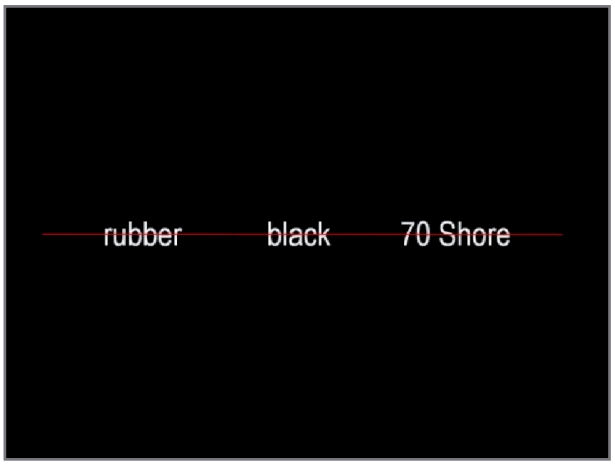
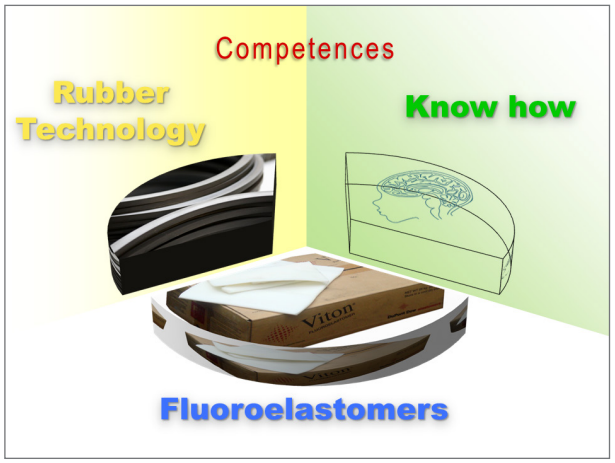
Zrunek can be presented with just two short slides:



We are not a company that manufactures mass-produced articles, such as “rubber, black, 70 shore”.



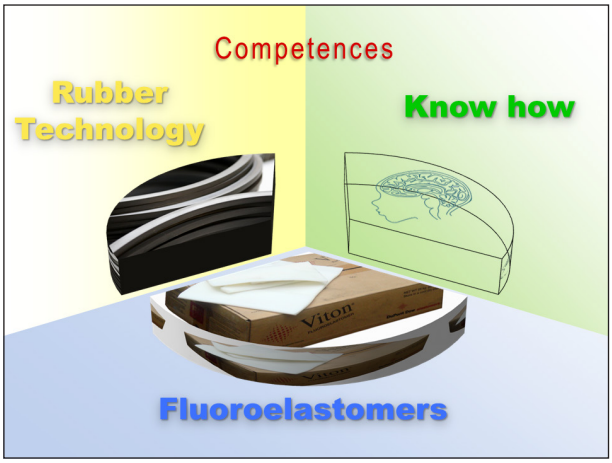
We are a dynamic, flexible and versatile company. We have three centres of competence relating to rubber: **Rubber technology** is our foundation, **fluoroelastomers** are our growth and our future and it is in our **know-how** centre that our potential lies.

Eduard Zrunek founded the business. He was a trained chemist, and he began working as a chemist in 1922, at Semperit in Vienna. Later he moved to the Semperit subsidiary Matador near Bratislava, where he culminated as managing director. But his career was abruptly interrupted during the Second World War, when he was let go because of his sympathetic attitude to Czechs and Jews. After the end of the war he was unable to start again with Semperit.

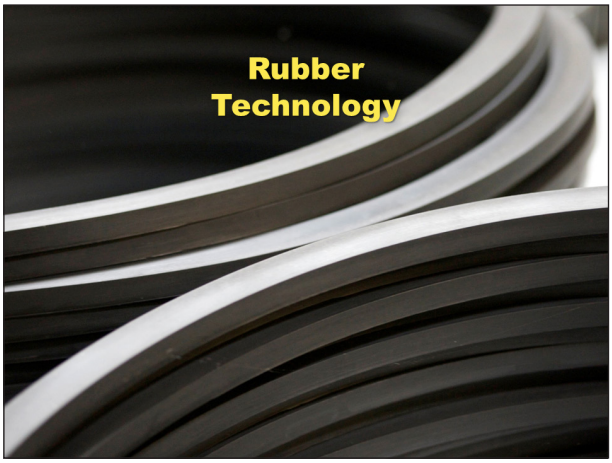
So self-employment seemed the only alternative, and this led to the founding of the Zrunek Company in the year 1947. Those were very hard times. Austria was an occupied country and Vienna was divided into 4 zones. Raw materials and energy were hard to come by. The economy was in pieces. Zrunek started up in the Russian zone, then moved to the British zone, and finally changed to the American sector.

That is where we are still located today.

Today Zrunek is over 70 years old. We have 25 employees and a turnover of 4.6 million Euro. Our work is ISO 9001 certified and we consider ourselves a competent partner in business and industry. In short: a competence centre for elastomers!



As already mentioned above, our competences are rubber technology, fluoroelastomers and know-how



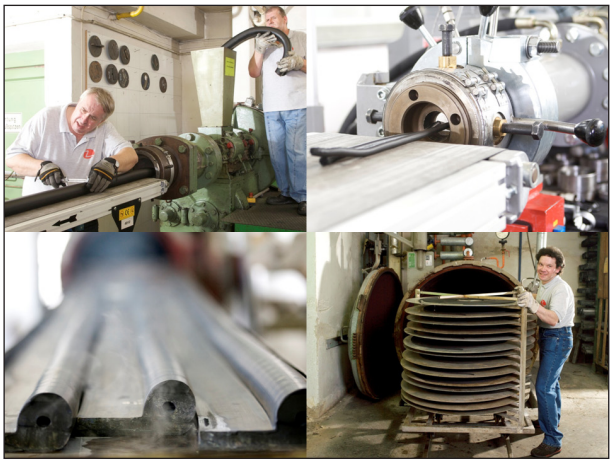
The first centre is rubber technology. This is the foundation of our business and of all our activities.

It comprises a broad spectrum of processed elastomeres: from standard elastomers such as NR, SBR, NBR, EPDM, IIR and CR, to the high power elastomers HNBR, silicone, fluorosilicone and FKM.

From these we manufacture all manner of parts such as profiles and cords, moulded parts, rollers, wheels, cord rings, flat rings, sealing rings, lathe-cut-, vulcanized rings, die-cut parts, sheets and strips, sleeves, hoses, conveyor belts, custom belts.

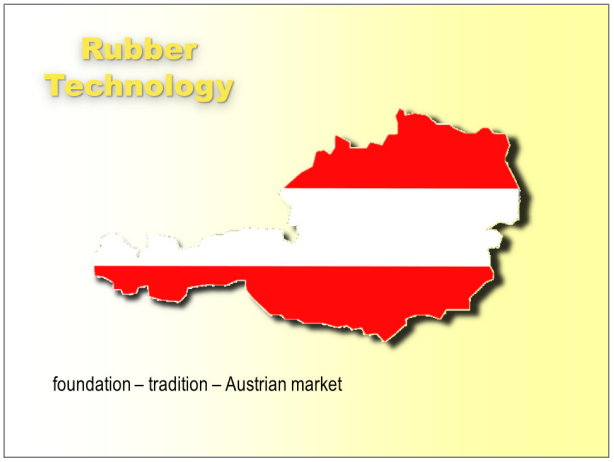
This broad spectrum of production capabilities demands an equally broad range of machinery, such as rolling mills, internal mixers, injection moulding machines, presses,

warm and cold feeding extruders, steam autoclaves,



presses for profile ring production, grinders, die cutters and a fully equipped laboratory.

Our competence in rubber technology provides the foundation for the Zrunek business, particularly in these turbulent times. It provides us with stability and supports our many years of experience with rubber. This is traditional manufacturing and because of this it is typically just the Austrian market that we serve.



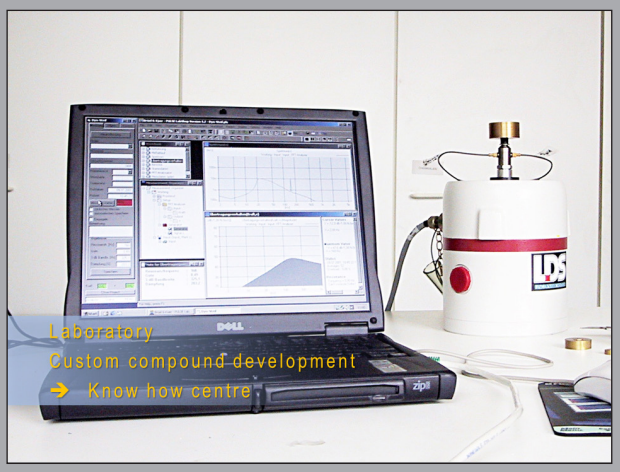
The second centre is fluoroelastomers. This is our most important centre. As well as the well-known brand name “Viton®”, we also process fluoroelastomers from other manufacturers such as Tecnoflon®, DaiEl® and Dyneon®.

The competences, and thus the advantages, that we can offer you are our in-house mixing plant, optimal machinery, an in-house laboratory and a high purchasing volume that guarantees attractive market prices. So it is no surprise that we are by far Austria’s leading business for fluoroelastomers.

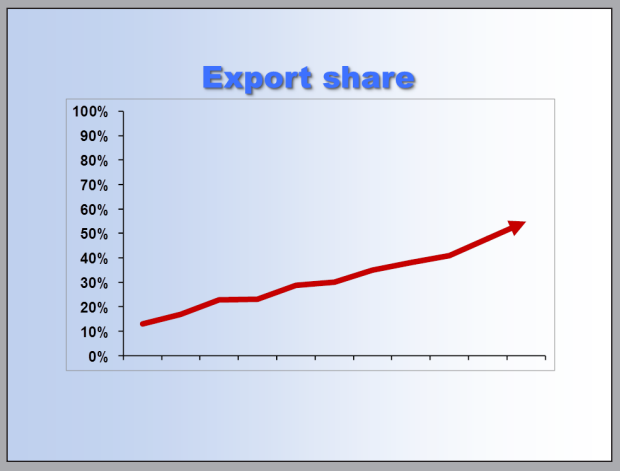
Our mixing plant is composed of internal mixer and rolling mill. We can mix FKM compounds from 40 shore to 90 shore, from white to coloured to black, from standard co-polymeres to special types up to 70% fluorine content or best low temperature flexibility. On the other hand, we don’t only mix standard mixtures in amounts of tons; rather the smallest batch size in the rolling mill is 10 kg. So we are able to offer you even customized solutions in attractive small lots. And keep our time flexible approach in mind: when it comes down to it, we can deliver fast.

Our competences are also in optimal machinery. Bisphenolic crosslinked fluoroelastomers cannot be vulcanized continuously, as the water that results from crosslinking would immediately lead to porous articles. Our steam autoclaves provide the optimal vulcanization method. Three independent extrusion units with a total of 5 extruders guarantee highest manufacturing precision. The most modern cold feed extruders are used, up to 120 mm warm feed extruders.

Our competences are rounded off with our laboratory. Here we are in possession of a very strong instrument for developing mixing recipes for customer solutions, which we then compound in our mixing plant for production. The laboratory is just as important for on-going checks and product enhancements. It contains a laboratory rolling mill, laboratory press, test apparatus such as tensile testing, rheometer, shore durometer, density testing, and a measuring system for damping.



Our competences in fluoroelastomeres are impressively demonstrated with our constantly increasing export share. One important factor for our competitiveness in exporting FKM is the cost structure of FKM articles. Product prices generally depend exclusively on the price of raw materials and only very little on manufacturing costs. So that means that it doesn't matter very much whether our production is in Vienna, Bratislava, or even in the Ukraine.



Our fluoroelastomer centre typically serves the European market. Our products are sold almost exclusively through technical trade. Technical trade is a reliable and competent partner for our fluoroelastomer products. This market is extremely important for Zrunek, especially because of our competitiveness and the associated constant growth. That is also where our future potential lies.

One fluoroelastomere capability that Zrunek can offer you is a wide range of stock. Currently we have 50,000 metres of FKM cords in all standard sizes in stock. In addition we have around 15,000 metres of various FKM hoses. For you this means low storage and a prompt delivery service by Zrunek.

Another product of interest for you is cord rings. Our strengths lie in short delivery times and quality in continuous production, proven over many years. This photo shows you that it is often not easy to distinguish our cord rings from O rings, or to find the connection point with the naked eye.

Cord rings involve manual fabrication. For such high quality you need good employees. And over many years Zrunek found them in this strong team. They produce currently around 30,000 rings per year. And the rate of complaint is almost zero!

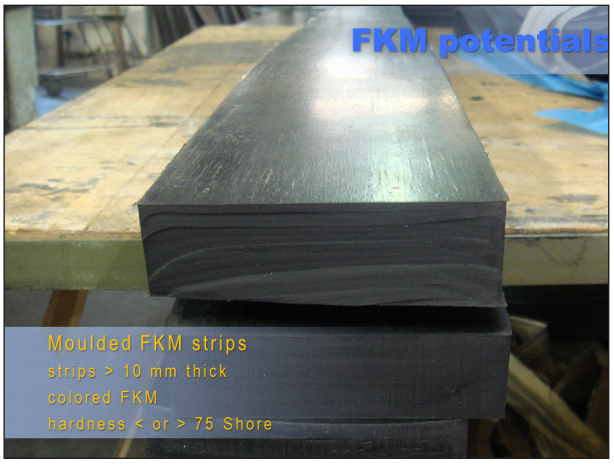
This picture shows the largest FKM cord ring that Zrunek has ever produced – an internal diameter of around 11 metres, manufactured from a cord of 30 millimetres.

This example of a somewhat unusual inquiry shows Zrunek flexibility and fast delivery. Cord rings, made from white FKM, from a cord of 8.4 mm were needed as fast as possible. After two weeks the rings were in England and our customer thankful.

Other capabilities are the fabrication of profiles, such as this flat profile. Zrunek is able to access all its strengths: the laboratory for optimal development of material; the mixing plant for a rapid start to production; our own tool construction for the shortest processing times; five extruders to prevent bottle necks in capacity; and quality management to ensure the quality you demand.

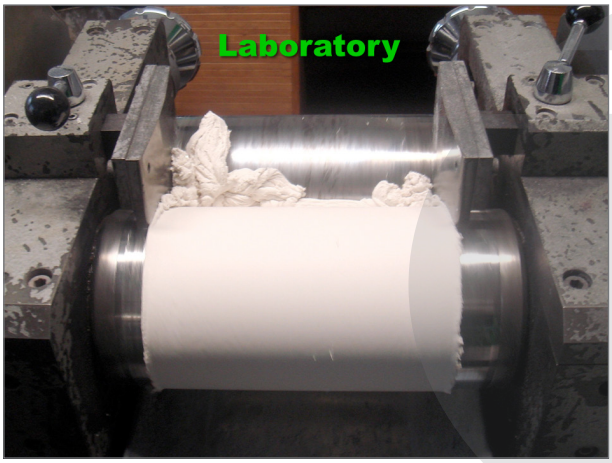
As well as extruders, Zrunek also has several large presses with heating surfaces of up to 1.3 metres by 2.5 metres. With this we have pressed e.g. O-rings with an internal diameter of 1.3 metres and a cord strength of 30 millimetres in FKM 90 shore white.

Strips will also be of interest to you, especially if they are unavailable cut from standard sheets. Examples are strips with a thickness greater than 10 millimetres, colour specifications or in softer or harder versions than FKM 75 shore.



Know how

The third competence – our know-how, experience and innovation.



The more important requirement for this is our laboratory. All our compounds are developed in our laboratory, so as to satisfy all our customer requirements. The laboratory is often the starting point for numerous innovations. And the laboratory is also the place where we can unravel and solve the occasional deviation in the rubber fabrication.

Extreme Compounding

20 Shore, high damping – polynorbornenes

10 Shore NBR for membranes

Electrically conducting butyl rubber

-50 °C flexible + high chemical resistance fluorosilicone

FKM -40 °C, best explosive decompression

antistatic FKM with carbon nanotubes

FKM with polyphenylene sulfone ($PPSO_2$)

On the topic of mixing development there are cited some of our more extreme variants.

Innovation

ZruMoos® FKM

a fluoroelastomeric sponge

Our innovations include the development of sponge rubber from fluoroelastomeres. This project has been generously supported for two years by the Forschungsförderungsfond of the Austrian government and by the city of Vienna. There are currently two specifications of sponge rubber available – 20 shore and 30 shore. As well as cords and rectangular and rounded profiles, we can produce numerous other profiles on request.

Other innovations are FKM materials that conform to FDA requirements or EC 1935/2004. More and more, FKM articles are requested that can be used in the food industry. The spectrum ranges from 60 to 90 shore, from white to black. Here too we see an interesting expansion in your product portfolio.

Innovation

ZruElast® FKM FDA

fluoroelastomers for food applications

A special innovation is soft FKM. It is the „missing link“ between conventional FKM and sponge FKM. The presented figure shows you the extreme elongation behaviour of more than 700 %. Additionally this material is 40 shore soft and has very good mechanical properties.

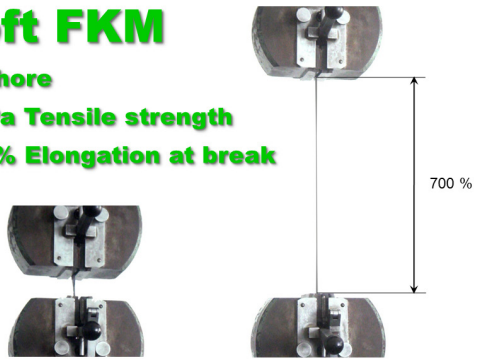
Innovation

Soft FKM

40 Shore

9 MPa Tensile strength

700 % Elongation at break



The next figures show you some examples of what we have developed for our customers from various branches. For example, this FKM stud, which is inserted into magnets for the central locking system for cars. The particular challenge here was a very low surface adhesiveness, with which we managed almost to double the lifetime of the mechanism. That means that even after 250,000 load cycles the contact delay through adhesion to the FKM stud remains acceptable.

Prototyping

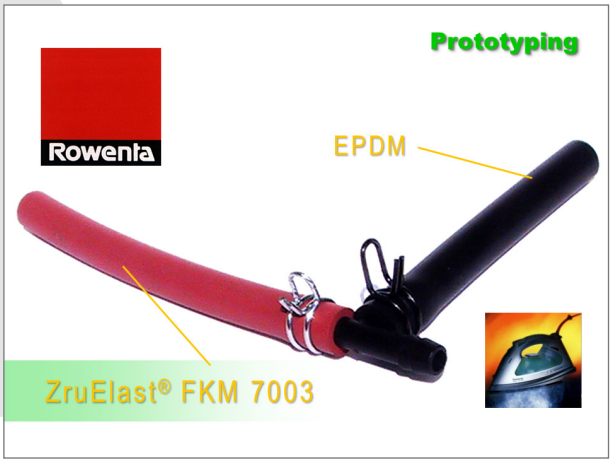
KENDRION
MAGNETTECHNIK

This hose bend was manufactured from FKM for MAN. This is an example where the know-how is less in the material and more in the manufacturing, and where a great deal of craftsmanship is necessary.

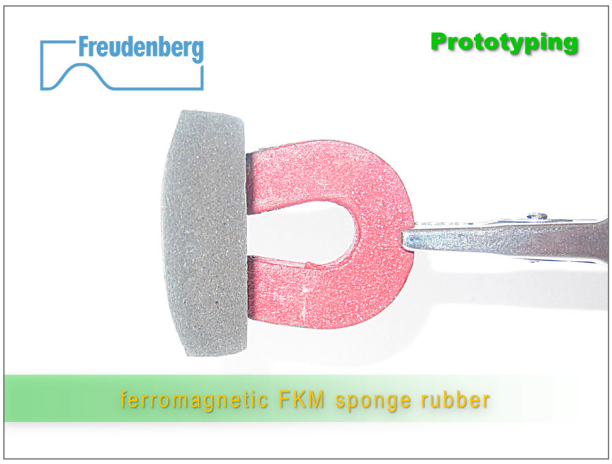
Prototyping

MAN

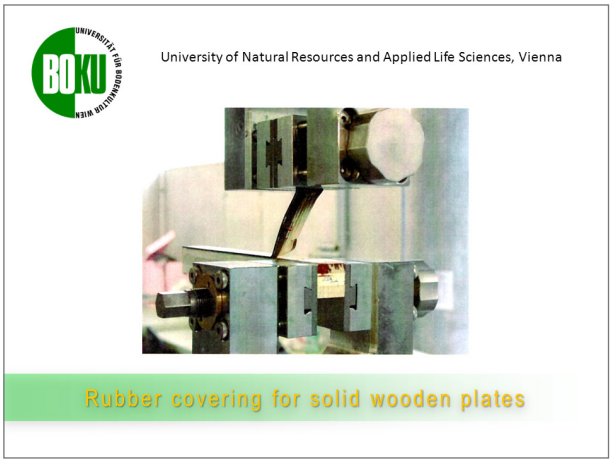
Now the case of this sealing ring for the Hoerbiger company was different. This valve for ship diesel engines has to be able to seal at very low pressures, and so a very soft FKM compound with optimal compression set values was necessary. For this we developed the compound ZruElast FKM 7245.



Another development is this red FKM hose for a steam iron from Rowenta. The red colour was chosen so that there is no confusion with the black EPDM hose during assembly.

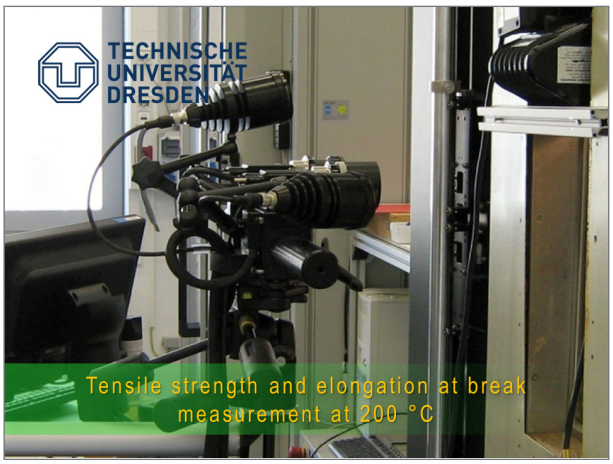


Freudenberg Forschungsdienste KG has looked for cooperation with Zrunek with the aim to use our know-how on FKM sponge rubber. The purpose was to develop a ferromagnetic FKM sponge rubber.



Our know-how is also exchanged with universities. For example, a project with the University of Natural Resources and Applied Life Sciences in Vienna. The project specification was to develop a rubber covering for solid wooden plates. This figure shows you a test piece in tensile testing, where we measured the force necessary to remove the rubber layer from the wooden part.

Another project was started with the Technical University of Dresden The aim is to find elastomers with high elongation and tensile strength at 200 °C. The measurement at 200 °C has been done at the university.



An artificial aorta from silicone was produced as a project in cooperation with the Medical University of Vienna. The highly transparent silicone material facilitates direct observation and analysis of the blood flow with a high speed camera.

Customers in Europe

last but not least

Zrunek regards itself not only as a technical company, but has also introduced rubber into art. Here are some examples.

www.zrunek.at

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