



Man-made Fibers and Natural Gas

Position paper of
Industrievereinigung Chemiefaser e. V. (IVC)
on the effects of an import ban on natural gas from the Russian Federation

Frankfurt am Main, 26 April 2022

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Background

Man-made fibers are produced for a wide variety of applications; the largest quantities go into the production of indispensable technical and medical-hygiene products.

Man-made fiber production requires natural gas exclusively for thermal purposes. Many sites are supplied by combined gas-and-steam power plants, which are not capable of partial load operation, i.e. cannot be run at reduced power. For full-load operation, an uninterrupted steam supply is needed.

The military conflict with Ukraine caused by the Russian Federation has already triggered numerous sanctions against the Federation in the Western world. In Germany in particular, calls for a halt to Russian natural gas supplies have sparked a heated debate: The question arises as to whether such a boycott would be economically justifiable and whether the resulting damage to the country's industrial architecture can be compensated. In recent years, Germany has increasingly developed natural gas as a bridging technology – with the aim of substituting power plants operated with other fossil fuels or nuclear energy until sufficient amounts of “renewable” energy are available. Up until then, Germany is dependent on the Russian Federation for energy: According to statements from the Federal Ministry of Economics and Climate Protection (BMWK), the shares of primary energy sources purchased from the Federation are ca. 55 % for natural gas, 50 % for coal and 35 % for mineral oil.

Impact of a natural gas embargo on man-made fiber production

What would the immediate halt of Russian natural gas supplies really mean? If natural gas were no longer available, 5 to 14 days would be required for a proper and complete shutdown of the man-made fiber production plants. This is because alongside safety and process-related aspects, also regulatory issues must be taken into account, as both shutdown and startup processes are non-operational states of plants that have to be monitored in close coordination with the competent public authorities in procedures that last several weeks.

Depending on the location and size of the plants, a short-term outage due to a lack of natural gas would result in average losses of EUR 5 million/plant. In addition, an ongoing daily loss would have to be expected which could be in the order of e.g. 250 000 EUR/day/plant, depending on the location.

Furthermore, restarting the plants is questionable if supply chains could no longer be serviced and customers globally look for other suppliers in the meantime. Thus, entire sites would be at risk.

Compensation for lacking natural gas supplies

The vast majority of power plants used for the production of man-made fibers, especially the highly efficient combined gas-and-steam power plants based on the principle of cogeneration with efficiencies of 90 %, are designed exclusively for the use of natural gas. Quite often, there are no technical facilities for operating gas turbines or steam boilers with fuels other than natural gas. Only in exceptional cases could a switch be made to mineral oil. However, even in these cases, the necessary stockpiling of mineral oil is designed only for a short-term failure of the gas burners. A change to base-load supply with mineral oil could take a time window of between 3 and 56 months, depending on the type of plant and taking into account licensing requirements. The use of hydrogen as an energy source is only possible in the very long term.

Conversion costs of the production plants

In the few cases where natural gas can be substituted, investment costs of EUR 250 million/plant can be incurred, depending on the emission level of the converted plant. Add to this the higher operating costs. In a conversion to "green" hydrogen, operating costs of EUR 100 million/year/plant are expected.

Position of the man-made fiber industry in Germany, Austria and Switzerland

If the continuous supply of natural gas were to be interrupted, there would be immense losses for the man-made fiber producers, which might even lead to the destruction of the entire local industry. The losses consist, on the one hand, of the technical damage due to an uncoordinated shutdown of plants and, on the other, of market-related consequential damage resulting from losses in production and product sales.

Customers along the value chain of the man-made fiber producers located here need to remedy such losses and find new producers on the world market. With China's global market share in man-made fiber production already exceeding 70 %, a scenario is

more than realistic that China will also take over these supply chains, thus leading to an even greater dependence on China.

A natural gas embargo imposed by the European Union on the Russian Federation would not only mean the cessation of production and the end for man-made fiber producers, but also for other industries such as basic chemicals, paper, metal production and glass and ceramics manufacturing, as well as their related sectors – and that would affect large companies and SMEs alike, as the German economic institute Institut der Deutschen Wirtschaft Köln e. V. (IW Köln) concluded in its summary report 40/2022 of April 2022: "No one can accurately predict what future these businesses would then still have in Germany. That would be an unprecedented development."

The Industrievereinigung Chemiefaser e. V. (IVC) believes that the economic and global political future of our country can only be secured with a strong industrial base in Germany. Therefore, weighing up all positions and influencing factors and assessing the consequences for labour and the market economy, we cannot support a short-term natural gas embargo on Russia.

About us

As a nationwide association of the important and innovative man-made fiber manufacturers in Germany, Austria and Switzerland, the Industrievereinigung Chemiefaser e. V. (IVC) has been committed to the common economic, technical, ecological and idealistic interests of its membership for more than 60 years and provides information on all aspects of man-made fibers.

The IVC sees itself as the speaker for the man-made fiber industry. The association is the link between its members and politics as well as scientific institutes and an expert contact on all points related to man-made fibers.

The IVC receives no financial support or donations from the public sector and is therefore politically independent. The association is financed exclusively by its members and is listed in the European Transparency Register under the number 4991 3771 894–86 and in the Lobby Register for the representation of interests towards the German Bundestag and the Federal Government under the register entry R000411.



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