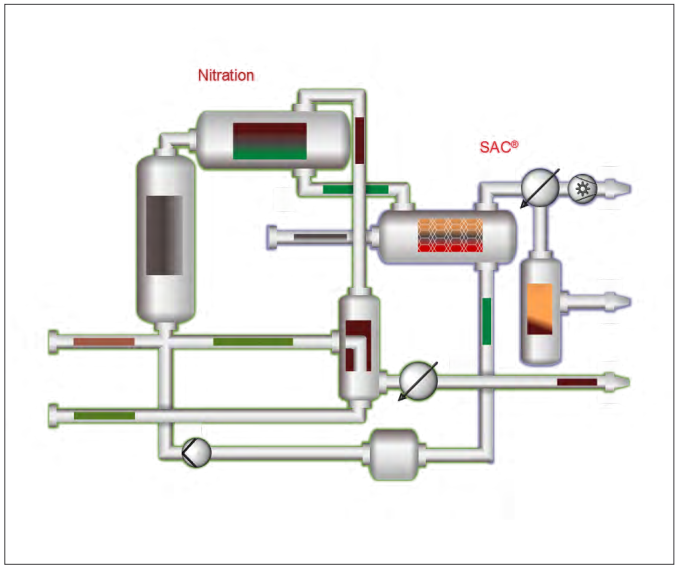
# Adiabatic Nitration of Benzene

*KBR's offers has developed a proprietary Plinke process for adiabatic nitration of benzene to nitrobenzene (NB). With our extensive experience in reconcentration of NB spent acid, we offer an integrated unit with both nitration and spent acid processing.*

The result is a very energy efficient overall process with excellent NB product quality and highly reliable sulfuric acid recovery process. The energy released during the chemical reaction of benzene to NB is kept within the process. Our reactor is highly efficient and its small size results in small plot plan requirements and low investment cost. KBR offers the complete range of nitration, separation and washing steps as well as effluent gas handling.




NB Plinke Adiabatic Nitration

## ADIABATIC NITRATION

Unlike the traditional process for nitration of benzene to NB, KBR's nitration reactor is not cooled resulting in the temperature rising when flowing through the reactor. The amount of recirculated sulfuric acid is adjusted to keep this temperature rise within the allowed limits. The highly efficient reactor design prevents back flow and assures minimum byproduct formation. Nitrobenzene and spent acid are separated, and sulfuric acid is reconcentrated in the proven Plinke SAC®. Crude NB is sent to washing steps.

## EFFLUENT TREATMENT

KBR offers Plinke $NO_x$ absorption technology for maximum yields and lowest environmental emissions. All nitrous gases produced are recovered as nitric acid using this technology. For waste water, KBR collaborates with reputable specialists to provide the best treatment technology in order to comply with local regulations and available downstream treatment possibilities.

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## ABOUT KBR PLINKE

Plinke GmbH, a subsidiary of KBR since 2016, is a Germany-based company focusing on the design and supply of plants for purification and concentration of inorganic acids worldwide. Plinke brings more than 70 years of experience in the field of treatment, recovery and concentration of inorganic acids such as sulfuric, nitric and hydrochloric acid. Our solutions successfully combine modern technology with state-of-the-art process engineering and well-proven materials to address even the most stringent requirements. Having supplied hundreds of plants for a wide range of applications and capacities, KBR continues to deliver tailor-made plants at any scale to satisfy client needs anywhere in the world.

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