

QUALITY REMOVES.



Bayoxide® E IN 20 – Industrial-quality Synthetic Iron Oxide Adsorber

Bayoxide® E IN 20 is a granular iron oxide media specifically designed for use in technical applications in which it serves as an effective filter adsorbent for removal of various species. It is a crystalline nanoparticulate α -Ferric oxide hydroxide with a very high surface area and adsorption capacity. At the same time, it also offers high abrasion stability to the stream of water. **Bayoxide® E IN 20** is applied for purification of non-drinking water sources in a simple passive pump-and-treat system applying the technology of fixed-bed adsorption. When water from a source is pumped through a vessel or a series of vessels containing **Bayoxide® E IN 20**, it passes through a fixed bed of the media where the relevant species is adsorbed quickly and selectively.

Benefits

- High surface area (150 m²/g)
- High adsorption capacity (e.g., phosphate removal from fresh water aquaria: 65 g phosphate/l)
- Advanced adsorption kinetics (e.g., for arsenate, arsenite, and phosphate)
- Robust mechanical properties due to high abrasion stability, which results in long media lifetime
- Simple once-through system
- Delivered as dry material

Bayoxide® E IN 20 can be used as an adsorbent for various applications within the chemical industry and standard water purification installations. Since **Bayoxide® E IN 20** has a significant affinity for oxoanions, it is able to selectively bind those from solutions even containing other anions such as chloride, sulfate, or nitrate.

Applications

- Phosphate removal from aquariums
- Silica removal from seawater and freshwater aquariums
- Phosphate removal from surface water, such as ponds, lakes, pools
- Arsenic removal from non-drinking water in which both, arsenate As(V) as well as arsenite As(III) are safely adsorbed below 5 μ g/l. No additional peroxidation of arsenite required
- Antimony, vanadium, and selenium removal from non-drinking water
- Heavy metal removal from non-drinking water, e.g., copper, lead, nickel, and zinc
- Purification of mining water, process water, and streams (e.g., electroplating industry)

Features

- High resistance against oxidants (free chlorine up to 150 ppm)
- Bayoxide® E IN 20 is advantageous in the removal of arsenite As(III) without pre-oxidation
- Very low backwash water volume necessary

Proper and safe handling of spent media is tested in accordance with US EPA's Toxicity Characteristics Leaching Procedure TCLP RCRA (40 CFR 261) and, therefore, can be treated as non-hazardous waste. This is especially relevant for the removal of hazardous materials, such as arsenic, from water. The operating capacity and therefore life expectancy of Bayoxide® E IN 20 for all applications depends on the quality and composition of the water to be treated and factors such as the pH value, temperature, and targeted effluent limit. Bayoxide® E IN 20 selectively adsorbs oxoanions such as arsenate, arsenite, and phosphate even during the presence of other anions such as chloride, sulfate, or nitrate. Therefore, a detailed water quality analysis including a wide range of parameters should serve as the basis for the selection of the most appropriate adsorber system and amount. The following information provides a basis for a standard Bayoxide® set-up system. Before each implementation, prior small-scale and pilot testing is recommended. For this, rapid small-scale column tests (RSSCT) are preferable.

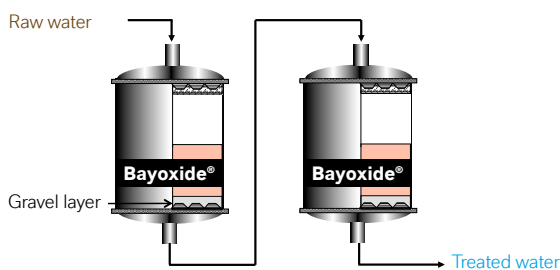


Figure 1: Standard technical set-up of Bayoxide® E IN 20

Standard recommendations

- Gravel underbedding
- Simplest configuration contains two adsorber filters with parallel flow, treatment of higher contaminant feed concentrations requires two adsorber filters in series flow configuration
- Standard start-up requires backwash for fines removal, followed by soaking for 4 to 24 hours for wetting
- Downflow operation
- Contact time (EBCT) between 3 to 5 minutes, for high contaminant feed concentrations (>2 mg/l) EBCT is increased to ≥ 5 minutes
- Periodic backwash for dirt and particle removal and for media fluffing for maximum capacity utilization

Technical conditions

- Filter arrangement: lead-lag, merry-go-round
- Operation mode: downflow
- Flow rate: 10–20 BV/h
- Freeboard: 40–100 %
- EBCT¹: 3–5 min.

¹ Empty bed contact time.

Contact

LANXESS Deutschland GmbH
Liquid Purification Technologies
Kennedyplatz 1
50569 Cologne, Germany
Phone: +49-221-888-50
E-mail: lewatit@lanxess.com

We are happy to support your business. Please contact us for additional information: visit www.lpt.lanxess.com

LANXESS
Energizing Chemistry

Health and Safety Information: Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling the LANXESS products mentioned in this publication. For materials mentioned which are not LANXESS products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be followed. Before working with any of these products, you must read and become familiar with the available information on their hazards, proper use and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets, product information and product labels. Consult your LANXESS representative in Germany or contact the Regulatory Affairs and Product Safety Department of LANXESS Deutschland GmbH or – for business in the USA – the LANXESS Corporation Product Safety and Regulatory Affairs Department in Pittsburgh, PA, USA.

Regulatory Compliance Information: Some of the end uses of the products described in this publication must comply with applicable regulations, such as the FDA, BIR, NSF, USDA, and CPSC. If you have any questions on the regulatory status of these products, contact – for business in the USA – the LANXESS Corporation Regulatory Affairs and Product Safety Department in Pittsburgh, PA, USA or for business outside US the Regulatory Affairs and Product Safety Department of LANXESS Deutschland GmbH in Germany.

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information.

Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent. All trademarks are trademarks of the LANXESS Group, unless otherwise specified. Status 08/2017