

SMOPEX[®] for pilot and production scale

Handling

- SMOPEX[®] fibres are easy to handle and filter.
- The flexibility of the fibres means that they do not break up in stirred reactors – even when high shear agitation is required.
- SMOPEX[®] can be coated onto a candle filter so that it forms a pre-coat. The PM-containing liquor is then circulated through the pre-coat, enabling easy PM recovery and subsequent separation of the fibres from the liquor.



SMOPEX[®] cartridge and housing



SMOPEX[®] column skid

Cartridges for pilot and production scale

- Cartridges are available in a range of sizes and are manufactured using a selection of materials so that they are suitable for installation in most plants.
- Cartridges can be purchased as individual units, pre-packed with SMOPEX[®]. They are supplied with a pre-filter attached to remove particulates that may potentially block the SMOPEX[®] cartridge.
- Where a number of cartridges are required, they can be supplied in multi-cartridge housing – ready to link into the plant.
- After use, the cartridges can simply be returned to Johnson Matthey for refining of the precious metal.

Economics

- Metal loading has a significant impact on the value of the metal recovered per kg SMOPEX[®]. SMOPEX[®] metal loadings are usually in excess of 5% due to an excellent accessibility of the metal-binding functional groups, whereas bead type resins typically give lower loadings.
- Johnson Matthey will offer technical advice to help you to optimise your metal loading.

Columns for pilot and production scale

- Column skid units, containing inserts pre-packed with SMOPEX[®], are available that can simply be "plugged" into the customers plant.
- Standard units can be leased for plant trials. With knowledge obtained from the plant trial, Johnson Matthey can then offer column skid units manufactured to customers specifications to buy or to lease. These can be built using a selection of materials to offer units that are resistant to most solvents and operating parameters.
- Each unit is complete with automation, temperature control, and safety devices – ensuring safe and controlled operation.
- After use, the SMOPEX[®]-containing inserts are returned to Johnson Matthey for refining and the metal is returned to the customer, based on the agreed refining terms.
- Johnson Matthey can offer ongoing technical support whilst the unit is in operation.

To find out how the knowledge and experience of Johnson Matthey Catalysts can improve your precious metal recovery visit:

www.jmcatalysts.com



Johnson Matthey Catalysts

For further information about our products or to talk to us about your individual requirements, please contact your local sales office or contact us at the addresses below.

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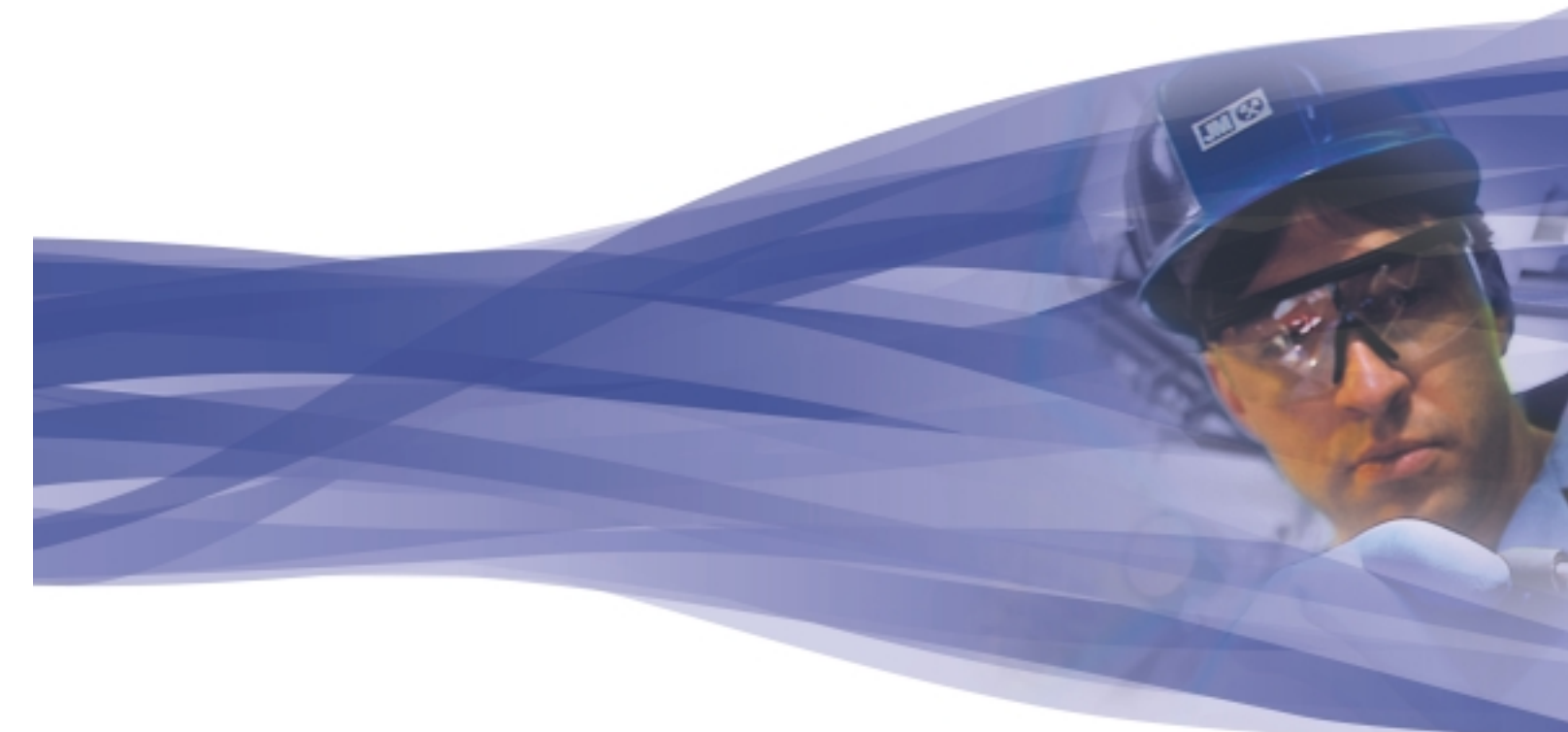
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Smopex[®]

precious metal scavengers

Complete engineered recovery



Johnson Matthey
Catalysts

SMOPEX[®]

The recovery of precious metals from process solutions is essential for improving process economics, enabling product purification and for the treatment of materials for effluent discharge.

SMOPEX[®] is a unique metal scavenging system where metal-binding functionality has been grafted onto fibres, allowing the effective recovery of a range of precious metals (PM). The current range comprises of 11 core products, with numerous additional products in development.

✓ Be sure of precious metal recoveries from effluent

✓ of heavy metal removal from effluent

✓ of minimising hazardous waste volumes for shipment

✓ overall positive environmental benefits

✓ SMOPEX[®] selectively removes ionic and non-ionic precious metal complexes from both aqueous and organic solutions

✓ SMOPEX[®] can be used as a filter aid to remove colloidal precious metal particles from process liquors

✓ SMOPEX[®] can remove metal from both homogeneously and heterogeneously catalysed reactions

✓ SMOPEX[®] allows recovery from liquors containing low levels of precious metal even down to parts per billion (ppb) levels

✓ The SMOPEX[®] system offers benefits, including fast reaction kinetics and high precious metal loading on the fibre

SMOPEX[®] screening

In order to determine fibre affinity and to obtain an indication of the metal recoveries achievable, SMOPEX[®] is initially tested on solutions at lab-scale using a batch or column type set-up. The process solution can be screened with the SMOPEX[®] range at Johnson Matthey, or by the customer – Johnson Matthey will supply a SMOPEX[®] kit and technical advice.

Johnson Matthey can provide the SMOPEX[®] fibres, in the form that is most suitable for the customer. This can either be for use in stirred batch reactors, or the fibres can be pre-packed in a cartridge or column, also supplied by Johnson Matthey, to offer **a complete engineered recovery of metals.**



SMOPEX[®] cartridge



SMOPEX[®] fibres