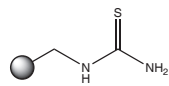
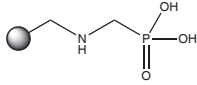
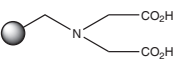
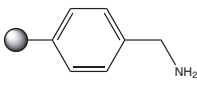
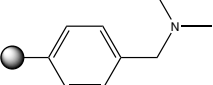
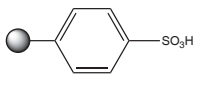


Johnson Matthey Scavenging Technologies QuadraPure™ polymer-based spherical scavengers offer cost-effective removal of precious metal catalyst residues for high purity products.

Advantageously, the very low levels of extractable impurities make QuadraPure™ products particularly suitable for GMP-compliant applications in both batch and continuous processing. Regulatory Support Files are available for each of the macroporous QuadraPure™ products to support their use in GMP-standard applications. The QuadraPure™ series can be used in loose resin bead format at R&D through to large-scale bulk process applications.

The QuadraPure™ product range includes:

QuadraPure™	Functionality	Capacity Mmol/g	Metals Removed
TU		3.0-3.5	Ag, Au, Cd, Co, Cu, Fe, Hg, Ni, Pd, Ru, Rh, V, Zn
AMPA		6-7	Al, Co, Cu, Fe, Ni, Sn, V, Zn
IDA		6-7	Al, Cd, Co, Cu, Fe, Ni, Pb, Pd, V, Zn
BZA		6-7	Co, Cu, Ni, Pd, Rh
DMA		4-5	Ag, Au, Cu, Fe, Ir, Ni, Pd, Pt, Rh, Sn
SA		3.5-4.5	Ag, Co, Cu, Fe, Ni, Ir, Pt, Rh, Ru

Metal-Contaminated Organic Solutions:

In metal contaminated organic solvents, such as DCM, DMF or THF, the QuadraPure™ may be used directly. Typically, add 5g of resin per 100 ml of 1000 ppm metal-contaminated solution and leave to gently agitate at room temperature for 16-24 hours. Metal removal is often more rapid and is frequently observed by a colour change in both the resin and the starting solution containing the metal contaminant*. The resin is simply removed by filtration.

Metal-Contaminated Aqueous Solutions:

If the metal is to be removed from an aqueous system, typically use 5g of resin per 100 ml of 1000 ppm solution, but in order to aid wetting of the resin the addition of a small amount of a water-miscible organic solvent (such as methanol, ethanol, acetone, etc) may be required. Gently agitate at room temperature for 16-24 hours. Metal removal can often be more rapid than this and is often observed by a colour change in both the resin and the starting solution containing the metal contaminant*.

*The rate of metal scavenging can be increased by the addition of more resin, raising the temperature (typically to 40-60 °C) or increasing the agitation rate.

Solvent Compatibility: Excellent compatibility across a range of common solvents such as water, DMF, THF, methanol, toluene, acetone, DCM. They can also be used over a wide pH range. However, QuadraPure™ products are not as compatible with nitric acid and other powerful oxidizing agents.

Temperature Stability: Max 80°C. Works well at ambient temperature.

Stirring Mechanisms: <350 rpm (overhead stirring recommended)

Recommended filtering equipment: The QuadraPure™ particles are highly robust and chemically resistant free-flowing beads that can be simply removed by filtration.

Alfa Aesar offers the following products from stock globally:

Item	Description	Sizes
46244	QuadraPure AEA, 100-400 micron	5g, 25g
46283	QuadraPure AK, 50-90 mesh	5g, 25g
45917	QuadraPure AMPA, 350-750 micron	5g, 25g, 100g
46008	QuadraPure BDZ, 400-750 micron	5g, 25g, 100g
45989	QuadraPure BZA, 400-1100 micron	5g, 25g, 100g
46297	QuadraPure C, 0.3-0.8mm	50g, 250g, 1kg
46083	QuadraPure DET, 450-650 micron	5g, 25g, 100g
46044	QuadraPure EDA, 500-800 micron	5g, 25g, 100g
45952	QuadraPure IDA, 350-750 micron	5g, 25g, 100g
46133	QuadraPure IMDAZ, 100-400 micron	5g, 25g
46198	QuadraPure MPA, 100-400 micron	5g, 25g, 100g
46102	QuadraPure PHE, 400-1100 micron	5g, 25g
45898	QuadraPure TU, 400-600 micron	5g, 25g, 100g