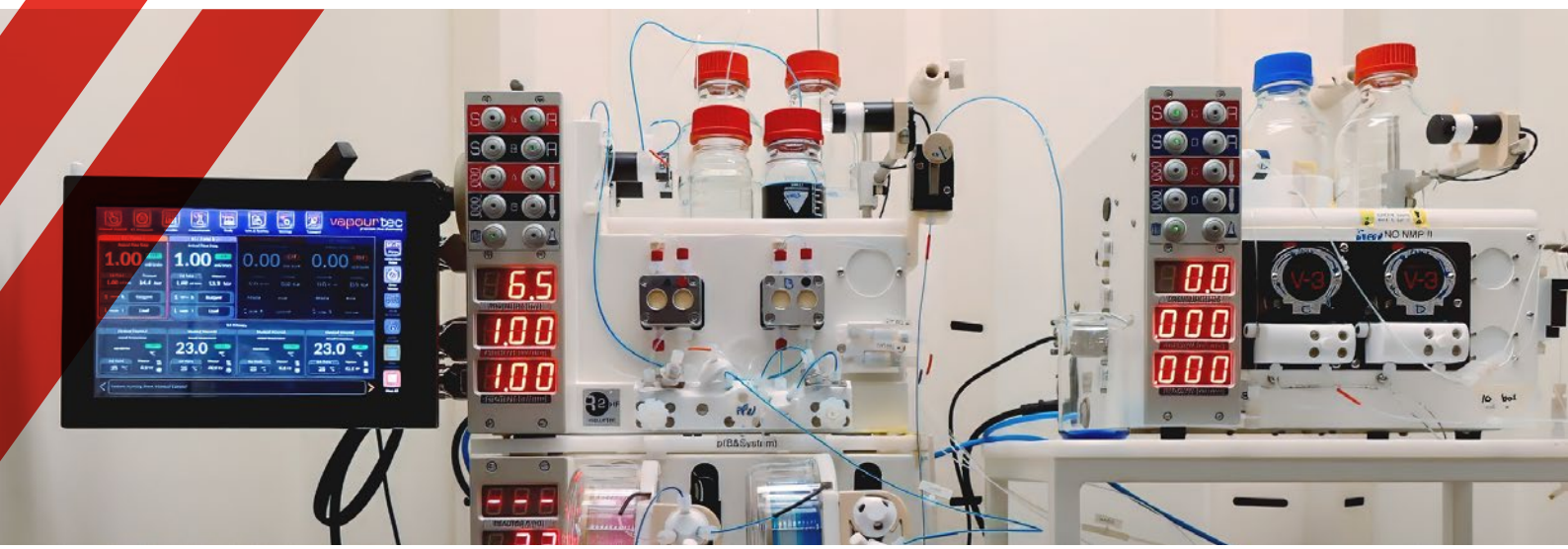
VALSYNTHESE



AZIDE CHEMISTRY: SAFE HANDLING *via* FLOW TECHNOLOGY

CONTINUOUS MANUFACTURING OF AZIDE-BASED LINKERS AND BUILDING BLOCKS.

Organic azides are energetic, toxic and structure-dependent in their stability. That is why most development partners avoid them. We come from a company that has worked with energetic materials for over a century. Flow chemistry is how we make that expertise usable at your scale.

Why flow for azides?

Continuous manufacturing offers significant advantages for azide chemistry and hazardous transformations:

- **Safety.** Minimal hazardous inventory. No accumulation of intermediates.
- **Control.** Constant conditions, excellent heat and mass transfer.
- **Scalability.** Scale by throughput, not by redesign.
- **Efficiency.** High space-time yield at short residence times.

Platform

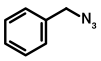
Operating window Flow rates 0.2–50 mL/min – Pressure up to 50 bar in reactor Temperature up to 250 °C – Liquids and slurries

Reactor technologies Plug flow reactors (PFA, PTFE) – Static mixed reactors – Membrane-based phase separation

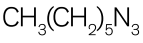
Today Reactor volumes 10–50 mL – Configured specifically for azide chemistry – Productivity up to 0.35 kg/day

Proven azide building blocks

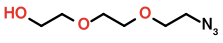
Manufactured on our flow platform, not modelled.



Benzylazide
CAS: 622-79-7
Productivity: 0,35 kg/d
Purity >97% (GC-A%)

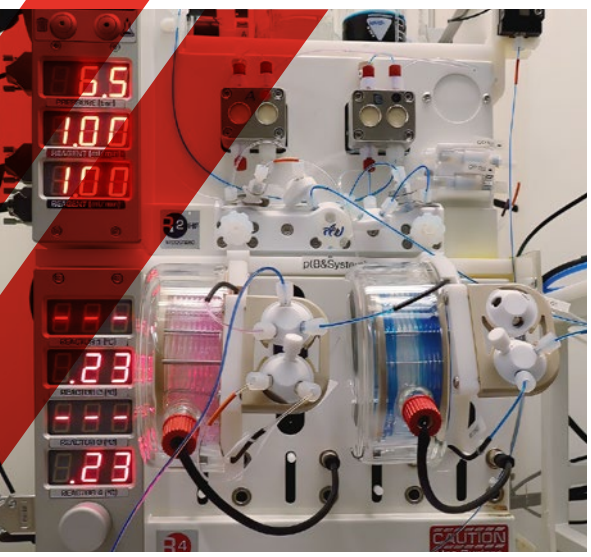


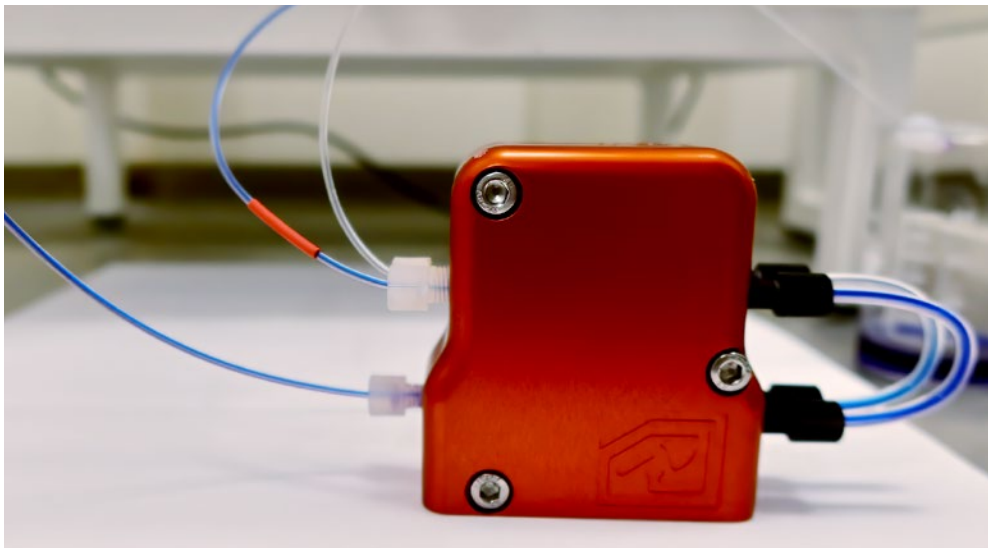
***n*-Hexylazide**
CAS: 6926-45-0
Productivity: 0,15 kg/d
Purity >95% (GC-A%)



Azido-PEG2-alcohol
8-Azido-3,6-dioxaoctanol
CAS: 86520-52-7
Productivity: 0,15 kg/d
Purity >96% (GC-A%)

VALSYNTHESE

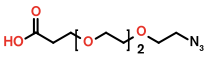




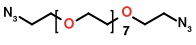
Target linker portfolio

Examples of linker building blocks currently under development and evaluation for pharmaceutical applications.

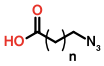
Examples Include:



Azido-PEG3-Acid
CAS: 1056024-94-2



Azido-PEG8-Azide
CAS: 361543-07-9



n-Azidocarboxylic Acids
CAS: multiples

Custom Azide-Based Building Blocks

Development of high-value linker intermediates for advanced pharmaceutical and specialty chemical applications.

Where we fit

Today
Gram to sub-kilogram quantities for route scouting, proof of concept and early development.
0.5–1 kg/week within reach.

Next
Pilot-scale continuous manufacturing at **1–5 kg/week**.

Later
Broader linker portfolio and larger-scale capability.

If your azide route is the bottleneck, this is where to start.

What we do

Custom azide-containing linker development – Route scouting and selection – Flow process development and optimisation
Safe handling and scale-up of hazardous intermediates – Rapid proof of concept – Transfer towards pilot manufacturing

LET'S GROW TOGETHER

Valsynthese SA
Linker Development | Flow Chemistry | Hazardous Chemistry | Custom Manufacturing

Société Suisse des Explosifs Group

VALSYNTHESE SA P.O. Box 636 / Fabrikstrasse 48 / 3900 Brig / Switzerland
T +41 27 922 71 11 / F +41 27 922 72 00 / info@valsynthese.ch / www.valsynthese.ch