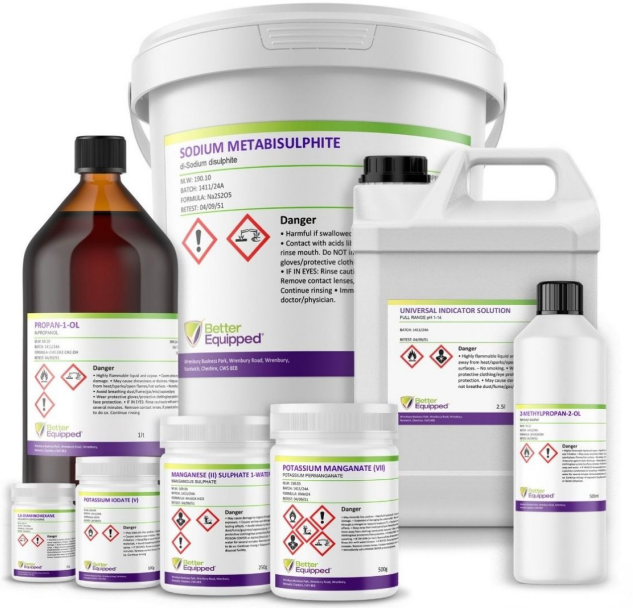
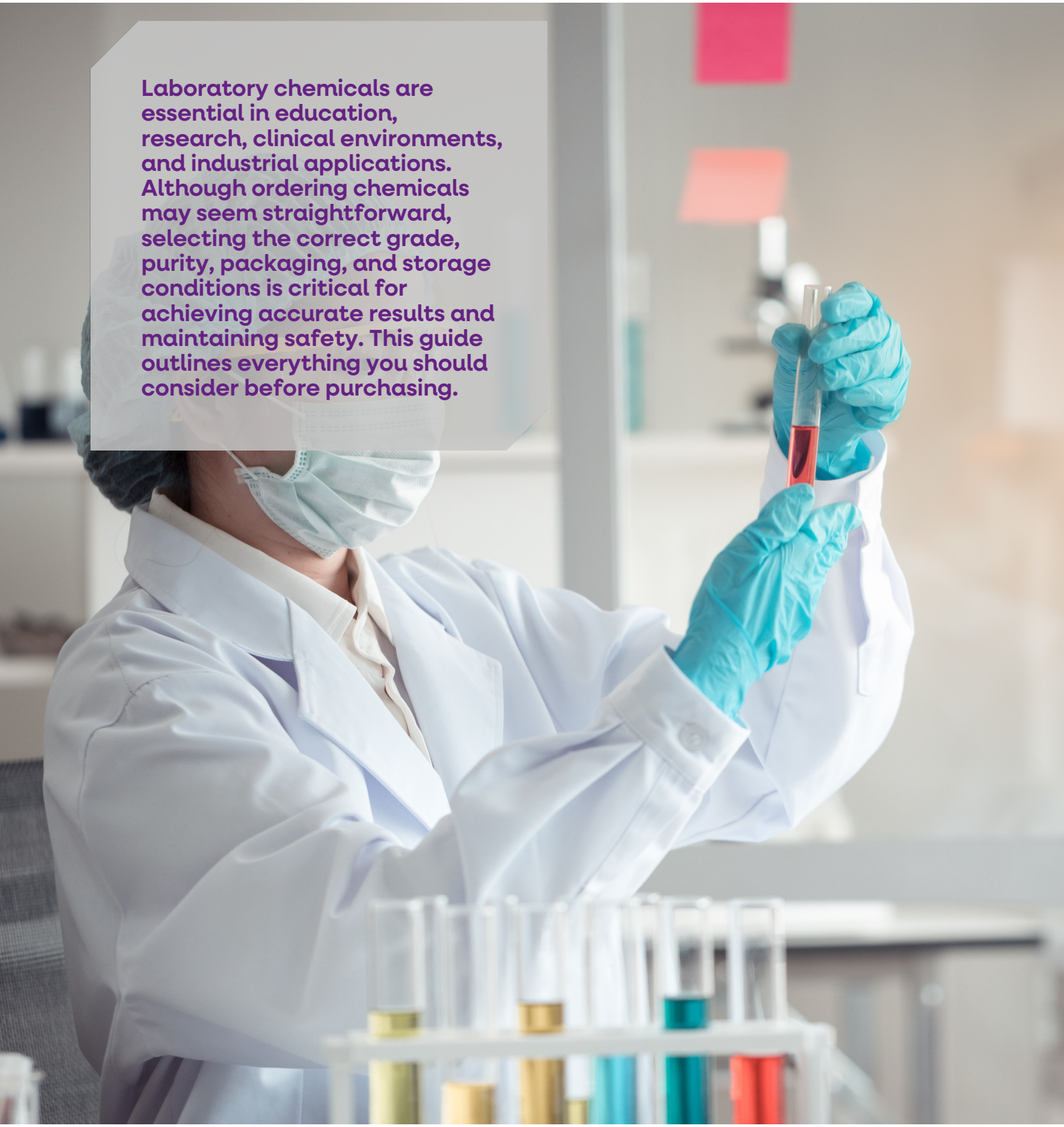
Chemicals Buying Guide



An essential guide to help you be better informed when purchasing Chemicals.



Laboratory chemicals are essential in education, research, clinical environments, and industrial applications. Although ordering chemicals may seem straightforward, selecting the correct grade, purity, packaging, and storage conditions is critical for achieving accurate results and maintaining safety. This guide outlines everything you should consider before purchasing.

1. Identify Your Primary Use Case

The intended application determines the required purity, packaging, and compliance level.

Environment	Requirements
School/Teaching Labs	Safe concentrations; general-purpose reagents; smaller volumes; clear hazard labelling.
College/ Further Education	Laboratory-grade chemicals with consistent quality; wider reagent range. **Click to view our range**
Research/Professional Labs	High-purity chemicals; traceability; minimal contamination; reproducibility.
Clinical/Diagnostics	Certified reagents; strict consistency; compliance with recognised standards.
Industrial / Quality Testing	Bulk quantities; batch consistency; cost efficiency; full documentation.

2. Understand Chemical Grades

Chemical grade determines purity and suitability for specific applications.

Common Grades

Technical Grade
Low purity; suitable for industrial or non-critical use.

Laboratory Grade (Lab Grade / LR)
Moderate purity; ideal for teaching and general laboratory use.

Analytical Reagent (AR / ACS Grade)
High purity; suitable for quantitative analysis and research applications.

HPLC / Spectroscopy Grade
Ultra-high purity; designed for chromatography and sensitive analytical techniques.

Pharmaceutical / Food Grade (USP, BP, FCC)
Meets strict regulatory standards for medical and food-related uses.

Always select the lowest grade that still meets your accuracy requirements to manage costs effectively.

3. Purity & Concentration

Ensure the chemical's concentration matches your application.

Percentage (%) solutions (e.g. 70% ethanol)
Molarity (M)
Normality (N)
Weight/volume (w/v) or weight/weight (w/w)

Consider:

- Whether you need pre-prepared solutions or raw chemicals
- The impact of impurities on experimental results
- Accuracy requirements for your work

4. Packaging & Container Type

Common Packaging Options

- **Clear glass bottles:** general-purpose use
- **Amber glass bottles**: protect light-sensitive chemicals
- **Plastic containers (HDPE, PP):** resistant to impact and many corrosive substances
- **Metal containers:** for certain solvents and flammable liquids

Additional features:

- **Tamper evident seals**
- **Vented caps** for pressure-sensitive chemicals
- **Spill resistant** designs
- **Dispensing taps** for bulk containers

The container must be compatible with the chemical and intended use.

5. Chemical Compatibility & Storage

Key Compatibility Risks

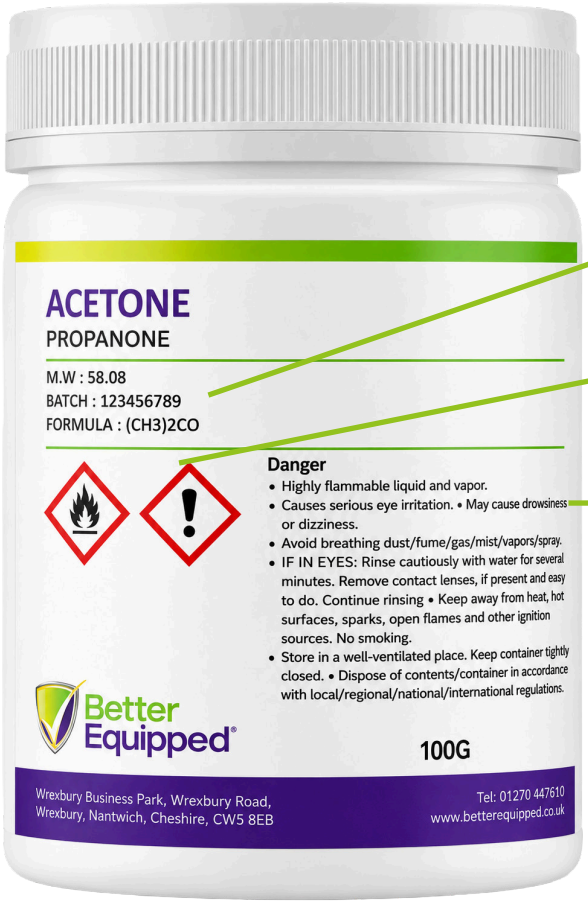
- **Acids vs. bases**
- **Oxidisers vs. organic materials**
- **Flammables vs. ignition sources**
- **Water-reactive substances**

Storage Best Practice

- Use appropriate **COSHH cabinets**
- Follow **Safety Data Sheet (SDS) guidelines**
- **Segregate chemicals** by hazard class
- Store away from heat, light, or moisture when required

Improper storage can lead to dangerous reactions or product degradation.

6. Safety & Compliance*



Look for:

- Supplier labels and batch information
- GHS/CLP hazard symbols
- Hazard (H) and precautionary (P) statements
- Accessible Safety Data Sheets (SDS)

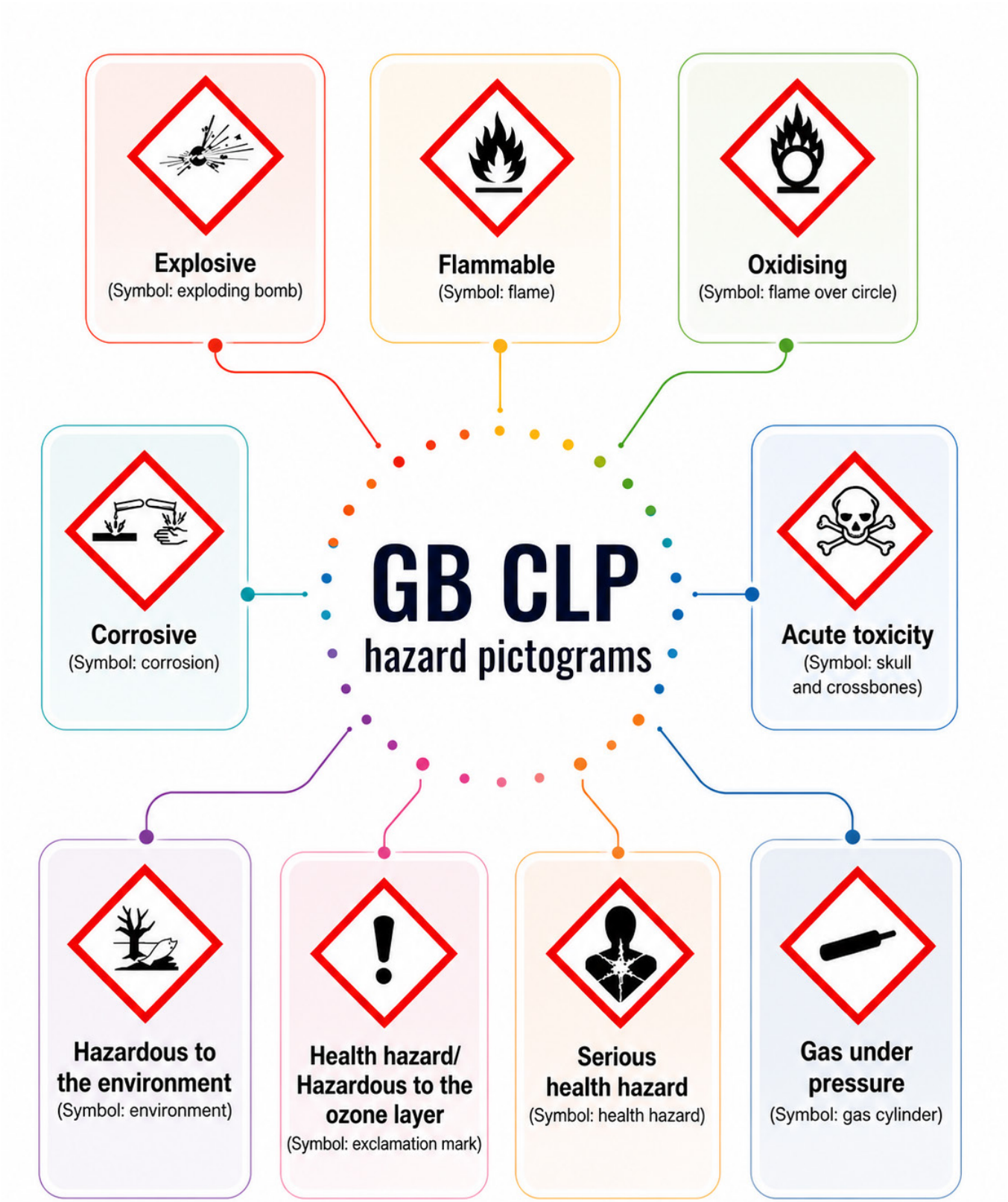
In the UK/EU, ensure compliance with:

- COSHH regulations
- REACH and CLP legislation
- Also see appendix pages 18-20

At www.betterequipped.co.uk look for the documentation tab of each chemical and click the 'Safety Data Sheet' Icon to view or download. Data sheets are also automatically emailed when any chemical is ordered.

*Legislation may change over time. Always refer to current UK government guidance and supplier compliance requirements.

6. Safety & Compliance
Hazard pictograms*



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7. Shelf Life & Stability

Chemicals degrade over time, affecting performance and safety.

Consider:

➢ **Expiry dates**
e.g. Hydrogen peroxide gradually decomposes

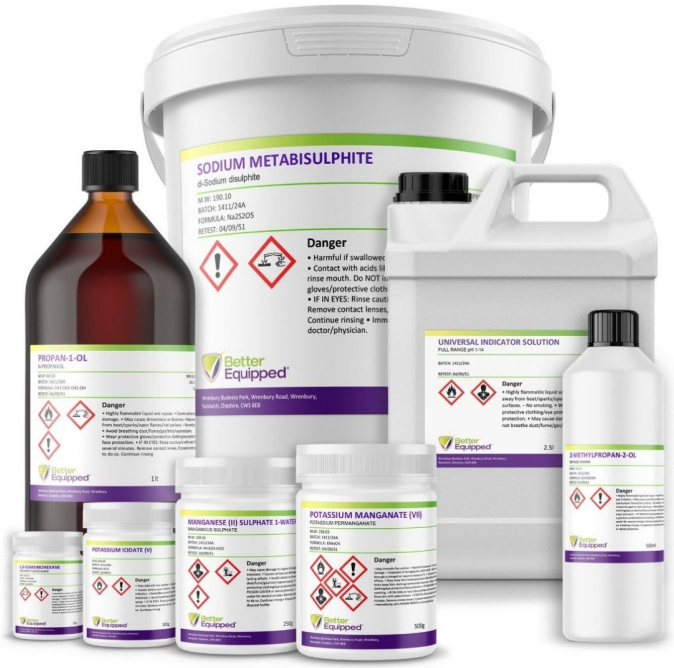
➢ **Stability after opening**
e.g. Solvents may absorb moisture

➢ **Sensitivity to light, air, or temperature**
e.g. Some reagents oxidise when exposed to air

Buy quantities that match your usage to minimise waste.

8. Quantity & Cost Efficiency

Balance cost with practicality and safety.



- Small containers: safer and reduce waste
- Medium packs: ideal for regular lab use
- Bulk quantities: cost-effective for industrial or high-use settings

Avoid over-purchasing chemicals that may expire before use.

9. Supplier Quality & Traceability

Reliable suppliers ensure consistency and safety.

Look for:

- **Batch numbers and Certificates of Analysis (CoA)**
- **Consistent product availability**
- **Detailed product specifications**
- **Established or reputable supplier brands**

Traceability is especially important for research and regulated environments.

10. Ease of Handling & Workflow Integration

Choose chemicals that fit your lab processes.

Look for:

- **Pre-prepared vs. manual mixing**
- **Dropper bottles or controlled dispensers**
- **Compatibility with pipettes or dosing systems**
- **Clear labelling for easy identification**

Efficient packaging reduces handling errors and improves safety.

11. Buying Checklist

Before purchasing, make sure you confirm:

☐Identification & Specification

- Correct chemical name (IUPAC/common name confirmed)
- CAS number verified
- Correct grade selected (e.g., analytical, laboratory, HPLC, technical)
- Concentration/purity specified (e.g., ≥99%, molarity)
- Required quantity appropriate (avoid over-purchasing)

☐Supplier & Quality Assurance

- Reputable supplier with quality certification (ISO, GMP where applicable)
- Certificate of Analysis (CoA) available
- Batch/lot traceability provided
- Consistent supply availability
- Reliable delivery and packaging standards

☐Safety Data & Documentation

- Safety Data Sheet (SDS) obtained and reviewed
- Hazard classifications understood (GHS/CLP symbols)
- Exposure limits and handling precautions identified
- First aid and emergency procedures reviewed
- COSHH assessment completed (UK requirement)

11. Buying Checklist (contd.)

☐Hazard & Risk Assessment

- Flammable / corrosive / toxic / oxidising risks identified
- Compatibility with other stored chemicals checked
- Need for segregation (e.g. acids vs alkalis, oxidisers vs organics)
- Environmental hazards assessed
- Fire and spill risks evaluated

☐Storage Requirements

- Suitable storage location available (e.g. COSHH cabinet, flammable cabinet, fridge)
- Temperature requirements known (ambient, refrigerated, frozen)
- Light sensitivity considered
- Ventilation requirements identified
- Secondary containment available if needed

☐Packaging & Container Suitability

- Container material compatible (glass, HDPE, PTFE, etc.)
- Container size practical for safe handling
- Leak proof and well sealed packaging
- Child resistant or safety caps where required
- Clearly labeled with hazard warnings

11. Buying Checklist (contd.)

☐Handling & Use

- Appropriate PPE identified (gloves, goggles, lab coat, respirator if needed)
- Special handling procedures required (e.g. fume cupboard use)
- Safe transfer methods considered (pipettes, dispensers, pumps)
- Training requirements identified
- Suitable equipment available

☐Transport & Delivery

- Delivered in compliance with dangerous goods regulations
- Packaging intact on arrival (no leaks/damage)
- Delivery documentation complete
- Storage immediately available upon arrival
- Emergency procedures in place for spills during delivery

☐Shelf Life & Stability

- Expiry date or retest date provided
- Stability once opened understood
- Degradation risks known (light, air, moisture)
- Stock rotation system in place (FIFO)
- Minimum stock levels defined

11. Buying Checklist (Contd.)

☐Disposal & Environmental Considerations

- Disposal route identified (hazardous waste, general lab waste, etc.)
- Waste classification confirmed
- Disposal costs considered
- Neutralisation or treatment requirements known
- Compliance with local environmental regulations

☐Cost & Procurement

- Price compared across suppliers
- Bulk vs small volume cost efficiency evaluated
- Delivery and hazardous handling fees included
- Total lifecycle cost considered (storage, disposal, compliance)
- Budget approval obtained

☐Good Practice Checks

- Only purchase chemicals that are genuinely required
- Avoid storing excess hazardous materials
- Maintain an up to date chemical inventory
- Ensure labelling remains intact throughout use

Appendix

Control of Poisons and Explosives Precursors Regulations 2023 & Poisons Act 1972*

The Poisons Act 1972 and the Control of Explosives Precursors and Poisons Regulations 2023 regulate the sale, supply, possession, and reporting of certain hazardous chemicals within Great Britain. The legislation is designed to prevent the misuse of chemicals that could be used to manufacture explosives or cause serious harm, while still allowing legitimate business and professional use.

Certain regulated or reportable substances include:

Regulated Explosives Precursors	Regulated Poisons
Ammonium nitrate	Arsenic compounds
Hexamine	Mercury compounds
Hydrochloric acid	Cyanides
Hydrogen peroxide	Phosphides
Nitric acid	Sulfides
Nitromethane	Oxalic acid
Phosphoric acid	Phenols
Sulfuric acid	Strychnine
Potassium chlorate	Thallium salts
Potassium perchlorate	
Sodium chlorate	
Sodium perchlorate	

Legislation may change over time. Always refer to current UK government guidance and supplier compliance requirements.

Appendix

Control of Poisons and Explosives Precursors Regulations 2023 & Poisons Act 1972

Additional Reportable Substances Include
Acetone
Aluminium powder
Potassium nitrate
Sodium nitrate
Sulfur
Sodium hypochlorite solutions
Formaldehyde
Ammonia
Hydrofluoric acid

The specific classification depends on chemical concentration thresholds defined by the legislation.

Appendix

Control of Poisons and Explosives Precursors Regulations 2023 & Poisons Act 1972*

Identity Verification Requirements

Under the 2023 Regulations, suppliers of regulated explosives precursors must verify the legitimacy of business and professional customers before dispatching goods. Suppliers are required to obtain and retain:

- Business name and address
- Name of authorised purchaser
- Photographic identification
- Nature of the business or professional activity
- VAT registration number (where applicable)

Records must be retained for a minimum of 18 months.

Verification Process

Where applicable, customers may be required to complete a short verification process prior to dispatch. A verification form may be issued automatically after ordering to confirm business legitimacy and intended professional use.

Suspicious Transactions

The legislation places a legal duty on suppliers to identify and report suspicious transactions, attempted purchases, thefts, or losses involving regulated or reportable chemicals. Orders placed for delivery to private or residential addresses may be treated as suspicious and could be subject to additional checks or reporting to the relevant authorities.

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