Standard Operating Procedures		SOP Ref:	18
Approved & Issued by:	Byron Smith	Written by:	Stuart McNish
Operational Area:	BKP Environmental Romsey, Transfer Station		
Title:	Compatibility Matrix		

1. Scope

This matrix is intended for use by chemists onsite at BKP Waste & Recycling Ltd site for assessment of suitable wastes for blending / mixing together. It is to be used prior to any laboratory assessments of materials and covers acceptable materials for mixing / blending together. This document also gives details on suitable materials for bulking and exclusions.

2. Prohibited for Mixing

Items falling into the following ADR classes should not be bulked/mixed together onsite with any materials, even materials of the same class.

- 1 – Explosives – They are not accepted at the facility
- 2 – Flammable gases – Aerosols may be repackaged but no flammable gas mixing takes place
- 4.2 – Substances liable to spontaneous combustion or self-heating
- 4.3 – Substances that in contact with water emit flammable or toxic gases
- 5.1 – Oxidising substances
- 5.2 – Organic Peroxides
- 6.2 – Infectious Substances – These are not accepted at the facility
- 7 – Radioactive substances – These are not accepted at the facility

Items of different ADR classes should not be mixed together with the exception of;

- Class 3 with Class 9 where both are calorific liquids (E.g. Flammable solvent with an organic fragrance)
- Class 3 with Class 8 where both have a subsidiary of the other class (I.e. 2 x flammable organic acids). For ADR classification please follow ADR table of precedence for resulting waste mixture

This should be assessed based on individual mixtures based on section 9 of relevant MSDS for each component prior to any laboratory testing. The laboratory compatibility testing will determine if the materials can be safely bulked together.

Examples of chemical classes not accepted for mixing are;

- **Any POPs Waste should not be mixed with other classes of hazardous waste**
- All Peroxides (Including Hydrogen Peroxide)
- Persulphates
- Percarbonates
- Nitrates (Inc Concentrated Nitric Acid)
- Nitrites

- Chlorates
- Chlorites
- Anhydrides
- Hydrazine & Azo/Diazo compounds
- Mixtures containing Hydrofluoric Acid >1%
- Mercaptans or highly odorous sulphur containing wastes without abatement
- Phosphorus Chlorides (PCl_3, PCl_5)
- Cyanides >0.1% free cyanide concentration
- Acid Chlorides
- Unsaturated Monomers in solution
- Sulphides >0.1% Concentration
- Fuming or concentrated inorganic Acids
- Isocyanates or other polymerizable compounds
- Highly Odorous Compounds where their odour cannot be abated or managed without offsite impact
- Any Category 1 HP6 materials (H300, H310, H330)
- HP6 Category 2 materials may be repacked if required with specific risk assessment and approval by site manager or operations director
- Any materials containing reactive metal swarfs or components that may produce hydrogen during processing – Aluminium Pigment paste solutions for example
- Siloxanes & Silanes that may liberate hydrogen
- Peroxide forming compounds (Tetrohydrofuran, Diethyl ether)
- Chromic Acid >0.1% Strength
- Sodium Hypochlorite / Sodium Bisulphite / Sodium Sulphite (or other HP12 materials) bulked with other wastes where oxidisation / reduction may occur

Similarly functionally chemicals should be mixed together. No mixing should take place of different chemical classes likely to cause a chemical reaction (through redox or incompatibility). All mixing should be modelled and tested in the laboratory after desktop assessments have been completed;

- Organic Acids with similar chemical functionality should be bulked together with other organic acids or flammable acidic streams
- Amine based waste materials should be bulked together
- Organic Wastes should only be mixed with Organic Wastes
- Inorganic Acids should only be mixed with Inorganic Acids
- No oxidising materials should be mixed with any other materials (Including oxidising acids with other inorganic acids or organic acids
- Chromic Acid should only be bulked with Chromic Acid (Max 5% strength)
- Sodium Hypochlorite only with sodium hypochlorite
- Sodium Bisulphite/metabisulphite only with sodium bisulphite/metabisulphite

Single stream wastes from the same waste producer of the same product I.e. 1000L of material in 25L containers from the same producer and same process may be bulked into larger containers if deemed acceptable by risk assessment for other materials excluding the below. E.g. Single stream waste in small containers into larger container

Wastes excluded from Bulking / Repacking (Unless in emergency or leaking containers pose risk to site staff or environment in immediate future and the material cannot be over drummed safely are below. This excludes

laboratory chemicals where the repacking is taking the primary small container from one container and placing it within a larger container with vermiculite without opening to enable Incineration;

- Water-Reactive wastes
- Category 1 Toxic materials (H300, H310, H330)
- Hydrofluoric Acid >1% in concentration
- Spontaneously Combustible Materials (Air Reactive, those liable to self-heating or self-reaction)
- Any fine metal powders or dusts that generate air emissions or pose a risk of static explosion
- Organic Peroxides (Excluding Peracetic Acid <5% / Hydrogen Peroxide Mixtures UN 3149)
- Hydrogen Peroxide >30% concentration
- Any gases (excluding repacking of articles like aerosols into vented containers to enable their disposal)
- Any Mercaptan or other Thiol Compounds due to Odour unless deemed acceptable by Site management within LEV cabinet
- Nitric Acid
- Hydrochloric Acid >20%
- Ammonia Solutions >5%
- Phosphorus Chlorides
- Acid Anhydrides
- Isophorone or Toluene Diisocyanate
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Wastes cannot be mixed that will cause a chemical reaction;

- Acids and Alkalis
- Ammonia and Sodium Hypochlorite
- Any elemental metal containing wastes with those of High or low pH (E.g. Aluminium suspension with Sulphuric acid will liberate hydrogen)
- Sodium Bisulphite/metabisulphite and any acidic materials
- Sodium Hypochlorite and any acidic or organic material

The list is not exhaustive but covers many chemical classes. There is a list by hazard statement included below. This can be found from ECHA for each chemical within a mixture or from the incoming technical assessments / consignment notes. Waste mixtures however do not perform as product chemical mixtures so the acceptance analysis completed often gives best guidance on the actual properties of the materials received. This is available from the incoming acceptance & pre-analysis completed by the site chemists and senior site chemist on material received.

Hazard Statement	Long Description
H200	Unstable Explosive
H201	Explosive; mass explosion hazard
H202	Explosive; severe projection hazard
H203	Explosive; fire, blast or projection hazard
H204	Fire or projection hazard
H205	Mass may explode in fire
H220	Extremely flammable gas
H221	Flammable gas

H222	Extremely flammable aerosol
H223	Flammable aerosol
H230	May react explosively even in absence of air
H231	May react explosively even in the absence of air at elevated temperature
H232	May ignite spontaneously if exposed to air
H240	Heating may cause an explosion
H241	Heating may cause fire of explosion
H242	Heating may cause fire of explosion
H250	Catches fire spontaneously if exposed to air
H251	Self-heating; may catch fire
H252	Self-heating in large quantities; may catch fire
H260	In contact with water releases flammable gases which may ignite spontaneously
H261	In contact with water releases flammable gases
H300	Fatal if swallowed
H310	Fatal in contact with the skin
H330	Fatal if inhaled
H229	Pressurised container, may burst if heated
H280	Gases under pressure, may explode if heater
EUH014	Reacts Violently with Water
EUH019	May form explosive peroxides
EUH 204	Contains Isocyanates. May produce an allergic reaction
H270	May cause or intensify fire; oxidiser
H271	May cause fire or explosion; strong oxidiser
H272	May intensify fire; oxidiser

Table 1 – List of Hazard statements unsuitable for mixing at BKP

Very low flash point materials (H224) must be individually assessed by generally cannot be mixed/bulked.

All materials received at BKP have been pre-booked and individually technically assessed and routed for an input to the plant. Non-conforming materials should be assessed and processed based on information supplied by customer and lab analysis obtained on waste received. Technical assessors will indicate if material is suitable for mixing.

All materials to be bulked / mixed must undergo a desktop assessment which is checked and then laboratory compatibility testing to confirm compatibility before any bulking/mixing can take place.

Laboratory compatibility testing will be completed in the onsite laboratory within the fume cabinet following LTP-LAB 13

Results of all compatibility testing and blending / mixing must be stored electronically on the site server and laboratory analysis system. This is completed using specialist equipment in accordance with HSE/EA guidance in Compatibility Testing Guidance for Bulking Operations in the Waste Treatment Industry.

Version	Created by & Date	Reviewed by & Date	Summary of Changes
1	SMcN 19-11-25	BS	Creation
2	SMcN – 23-07-26	DG	Amended Typos on operator, added additional materials to prohibited list

Print: ..... Sign: ..... Date.....

Signed off by:

..... Director / Manager / Supervisor