Selleys Padstow

Project Bowerbird -Proposed Development
15 Gow Street

Plan of Operational Management

Introduction

The proposed development seeks consent for the following works:

- Demolition of existing warehouse and maintenance building;
- Strip out and refurbishment of existing warehousing space to create a state of the art manufacturing facility with ancillary raw materials storage which will continue to be operated by the DuluxGroup and Selleys;
- Construction of external tank storage and tanker unloading area; and
- Remodelling of the existing vehicle access to allow uni-directional truck flow.

About Selleys Padstow

The Subject Site is home to both Selleys manufacturing and corporate functions of DuluxGroup of which Selleys is a subsidiary. It is the global headquarters of Selleys and Yates and the NSW corporate base for Dulux, Cabots and other businesses part of DuluxGroup. There is a mix of onsite, hybrid and remotely-based workers.

The Selleys operational team undertake manufacture of Sealants, Adhesives & Fillers (SAF) and Household Cleaning products. Research and development activities on-site include formulation development and scale-up to full sized manufacturing capability. Additionally, Selleys corporate groups are based within the existing office space.

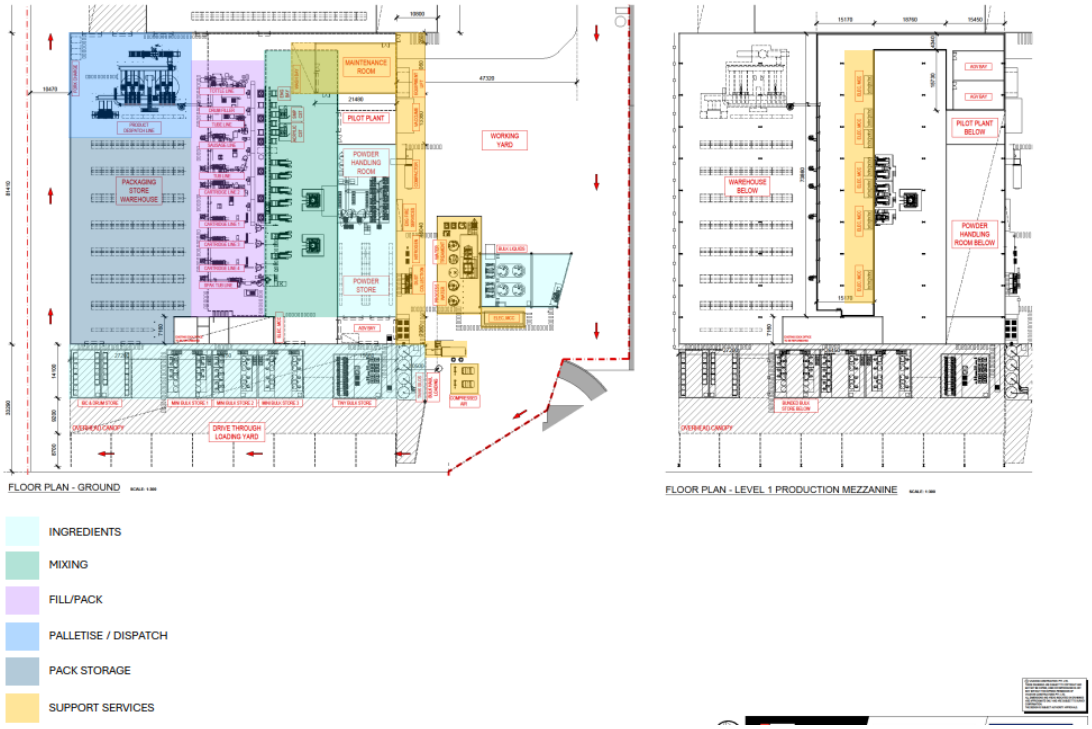
The existing Selleys factory was constructed in 1964 and over the course of 60 years has seen a significant increase in production throughput and operational complexity. This growth has been catered for somewhat haphazardly. As a result, the flow is particularly poor both in terms of vehicle movements on-site and workflow within the existing factory. The existing manufacturing plant produces 270 products totalling over 21 million units a year, across a range of products. The majority of these are Sealants, Adhesives and Fillers (SAF) for 'DIY' consumers and household cleaning products for grocery channels. Major brands include No More Gaps, Liquid Nails, Spakfilla and Sugar Soap. A broad range of chemical technologies are processed, including acrylic (water-based), solvent-based, silicone and the latest generation of hybrid/MS polymer.

The general production process combines solid and liquid raw materials in one (1) of 27 mixing vessels to produce a thick paste. Fine control of dispersion, temperature, aeration, moisture and biocontamination is required. High volume materials are stored in bulk tanks (and delivered by tanker) but the majority are handled in 200L drums or 25kg bags (and delivered by regular trucks). Product is packaged on 16 filling lines into cartridges, sausages, tubs, tubes and bottles.

The existing factory has served the business well but is outdated and unable to effectively produce modern product technologies or meet future capacity and sustainability requirements. The proposed factory will be highly automated and deliver a step-change in safety, quality and efficiency with significantly less waste. The majority of Padstow production will move into the

new facility. Solvent-based production will remain in the existing factory but is expected to transition to more sustainable technologies in the future, at which point it will also be produced in the new factory.

Whilst the transition to more sustainable materials occurs manufacturing will occur across the two facilities, with each building retaining localised material racking for ram materials & packaging, alongside the use of existing tank storage for liquids serving the existing factory.



Proposed Operations

Manufacturing plan layout zoning (New Building)

Manufacturing Operational Process Flow (New building)

Manufacturing Operations

Process Flow

A Typical Batch could consist of the following steps:

- Add Liquid Group 1;
- Add Powder Group 1;
- Disperse under Vacuum;
- Hold at Temperature;
- Add Powder Group 2;
- Add Liquid Group 2;
- Mix and Cool;
- QC Check;
- Discharge.

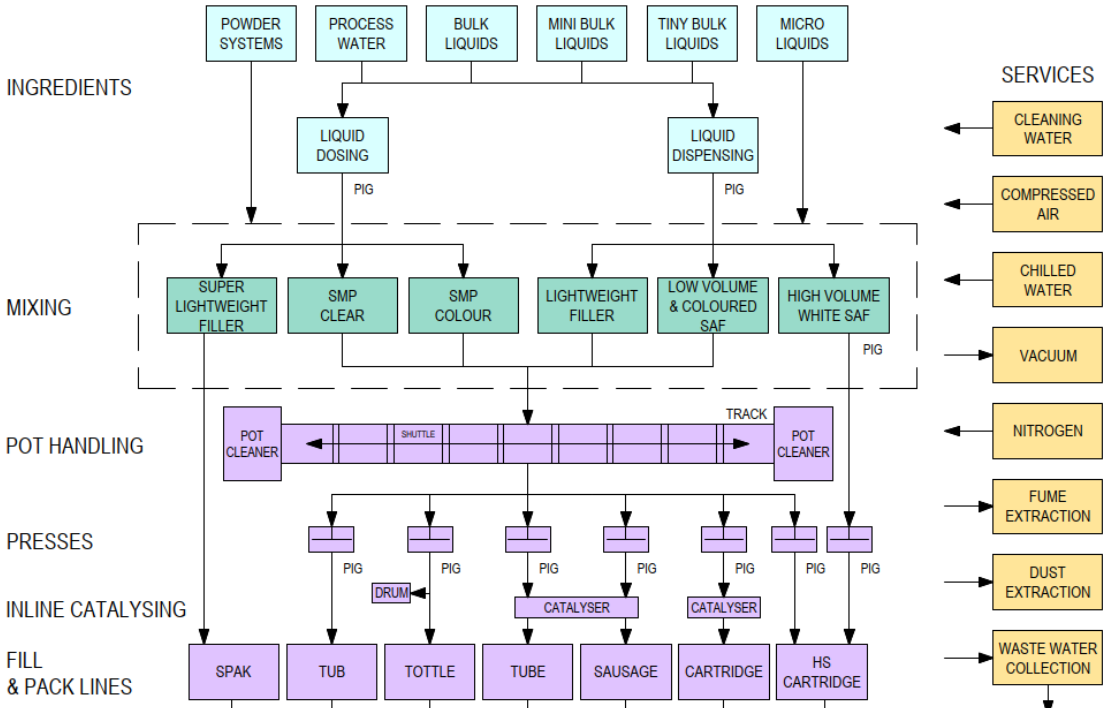
Ingredients

Liquid Chemicals

The chemicals used to formulate a SAF batch will be transferred from different liquid systems, comprising:

- Bulk Liquids;
- Mini Bulk Liquids;
- Tiny Bulk Liquids;
- Micro Liquids.

Bulk liquids are supplied to the site from Road Tankers. IBCs, Drums, and miscellaneous packages are used to supply the Minibulk, Tinybulk and Micro Liquid storage vessels. Minibulk and Tinybulk vessels are stored under the canopy with the exception of flammable



liquids which are stored in the existing DG compound. Micro Liquid vessels are stored inside the factory close to the production mixer and dispersers.

Bulk Liquids

These liquids will be stored in 4 x 50kL Vessels.

Bulk liquids are delivered to the site by semi-trailer road tankers approx. 25,000L capacity. From the tanker it will be unloaded at a rate of 25,000kg/hr (≈7kg/sec).

Tankers will have a drive through unloading station on the site that will be bunded and roofed to mitigate rainwater filling up the bund. There will be one unloading station with a valve manifold to fill either one of the four tanks. After unloading, the line will be flushed with biocide process water and drained to minimise cross contamination.

When transferring the bulk liquids to a batch it can be transferred directly to the dispersers/mixers via flowmeters, or via a Dispensing Head/Cocktail tank and pigged or via totem poles and pigged.

Filters and strainers will be used to minimise unwanted solids / contaminants being transferred through to the mixer and dispersers.

Mini Bulk Liquids

These liquids are contained in 21 x 1500L vessels which are gravity fed by a 1000L IBC stationed above each vessel that are stationed and removed by forklift.

Some vessels require heating, nitrogen gas atmosphere, humid atmosphere, and agitation.

Some Minibulks have the following DG ratings: Corrosive Class 8, Misc DG Class 9, Combustible.

When transferring the Minibulk liquids to a batch it will be pumped to the dispersers/mixers via a Dispensing Head/Cocktail tank and pigged or via totem poles and pigged.

Minibulk transfers will be performed by air operated diaphragm pumps. Filters and strainers will be used to minimise unwanted solids / contaminants being transferred through to the mixer and dispersers.

Tiny Bulk Liquids

These liquids will be contained in 24 x 250L and 12 x 500L vessels which are manually filled.

Some vessels require heating, nitrogen gas atmosphere, humid atmosphere, and agitation.

Some Tinybulks have the following DG ratings: Flammable Class 3, Corrosive Class 8, Misc DG Class 9, Combustible.

When transferring the Tinybulk liquids to a batch it will be pumped to the dispersers/mixers via a Dispensing Head/Cocktail tank and pigged or via totem poles and pigged.

Tiny bulk liquids will be transferred by air operated diaphragm pumps. Filters and strainers will be used to minimise unwanted solids / contaminants being transferred through to the mixer and dispersers.

Micro Liquids

These liquids will be contained in 1 x 5L vessel and 2 x 10L vessels which are manually topped up. The liquid additions are small at around 40g-500g additions and will be transferred via a peristaltic pump with a flow meter for accurate dosing.

Powders

For powder additions there are different transfer options depending on the type, and quantity of powder. Each Disperser/Mixer will have 1 or 2 Batch Bins above to prebatch and meter the powders in as required. Each Disperser/Mixer will also have a manual port to add small boutique additions including powder tinters.

The powder system will comprise of:

- Bulk powders which will be transferred directly from a silo to the batch bins above dispersers. Silos are filled from bulk powder tankers;
- Bulk bag vacuum delivery via dedicated stations for SPAK;
- Mobile bin collection/docking system that collects powders from delivery stations and moves to docking stations to pneumatically transfer powders to the batch bins above dispersers. The mobile bins are filled from:
    - Bulk Bag unloaders;
    - Dispensary powders which are manually weighed and hand tipped;
    - Small bag dispensary for small quantities including tinters and hazardous powders;
    - Driers for specified SMP powders.

Process Water

Process Water will be used as product addition and for flushing product-based pigging.

Process Water is required to be cold and biocides free. As a result, ozone/UV will be employed to maintain the biological integrity of the system.

Ozone gas is injected into the Tank to keep the stored water sterile. The ozone in the supply piping is destroyed by 254nm UV light at a suitable UV dose before users so the water is fresh and ozone free. At night the UV lamps are turned off and the piping supply loops are sanitised by circulating ozone water throughout.

The plant will produce the following Finished Goods formats:

- Cartridges
- Sausages
- Tubes
- Tottles
- Round Tubs
- Spakfilla Tubs
- 200L Drums.

The relationship between Make and Fill is shown in Fig 5.0

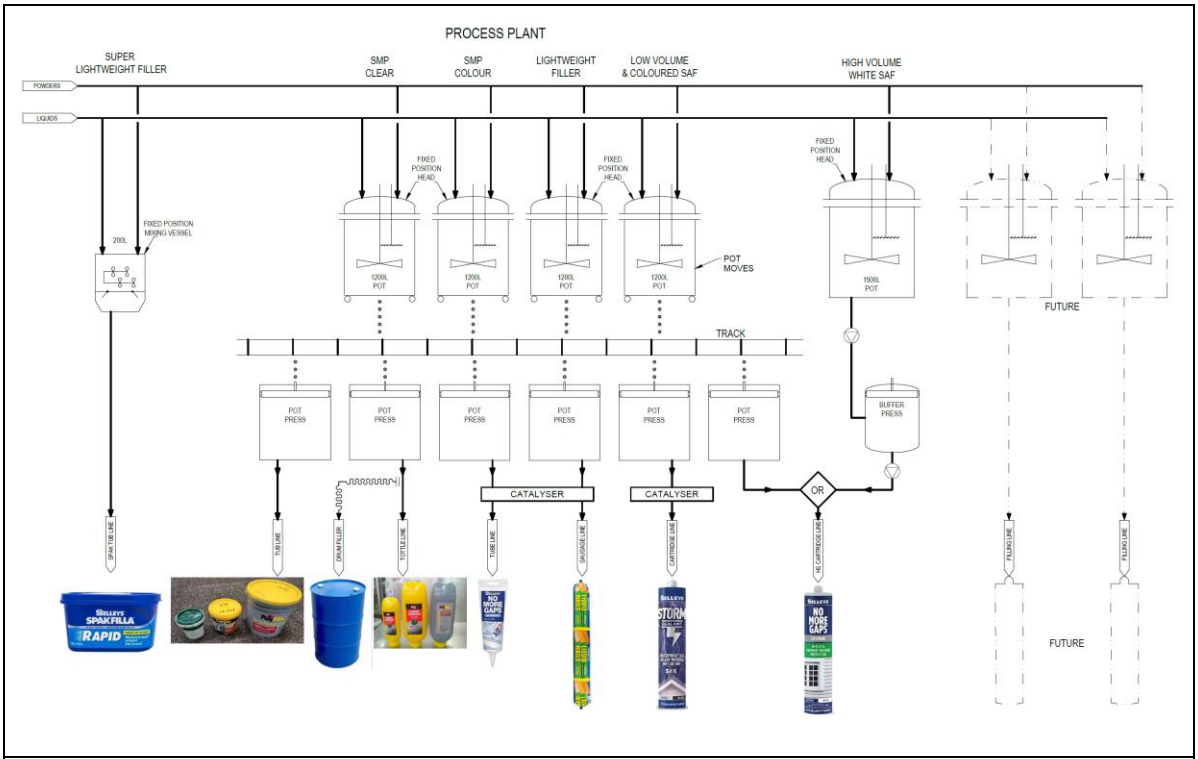


Fig 5.0 – Relationship between make and filling

Mixing Vessels

Six (6) Mixing Vessels are used to combine chemical raw materials and produce the bulk that is filled into the Finished Goods containers. These vessels can provide a combination of high shear dispersion and low shear agitation and are fitted with sensors (eg, pressure, temperature) and services (eg, nitrogen, vacuum and cooling water) to achieve fine control over the production process.

The 6 Mixing Vessels produce:

- HV White SAF, such as: No More Gaps
- LV Coloured SAF, such as: Liquid Nails Fast
- Light Weight Fillers, such as: Large Cracks
- SMP Colours, such as: MarineFlex Black
- SMP Clear, such as: Storm Clear
- Super Lightweight Fillers, such as Spakfilla Rapid.

Product Transfer to Filling

SMP Clear, SMP Colour, Light Weight Fillers and Low volume / Coloured SAF are prepared in 1,200 L pots and automatically transported on a track (Mobile Pot) system to fixed Presses for filling. Product from any of the 4 Dispersers can be filled on any of the 6 filling lines on the Mobile Pot System. The Mobile Pot System automatically manages all pot movements between Dispersers, Platten Placing Station (the plastic plattens seal the

product), Fixed Presses that engage with the platten to press out the product, Cleaning stations, park stations and a maintenance station.

SMP products are batch produced and catalysed ‘In-Line’ immediately prior to filling of Cartridges, Sausages and Tubes.

High Volume white SAF is prepared in a 1,500L Disperser and pumped to a 2,400L Buffer Press. The Buffer Press maintains a nominal pressure on the product and is pumped from the Buffer Press to the High-volume filling line with a continuous process fed from the Disperser that is a batch process.

SPAK is batch produced in a 200L mixer, which is dropped into a chamber below and screwed to a filling Hopper and filled while the next batch is being produced in the Mixer above.

Filling / Case Packing Lines

There are 7 filling lines, these include:

High Speed Cartridge

The High-Speed Cartridge line consists of an integrated Filler and Case Packer, fitted with a 3rd party accumulator between the Filler and Accumulator. Cartridges are 310 mL and are packed with 6, 12, 20 units/Case with nozzles clipped onto the cartridge.

Low Speed Cartridge

The Low-Speed Cartridge line consists of an integrated Filler, ’In-Line’ catalyser and Case Packer, fitted with a 3rd party accumulator between the Filler and Accumulator. Cartridges are 310 mL and are packed with 6, 12, 20 units/Case with nozzles clipped onto the cartridge.

Sausage

The Sausage line consists of an integrated Filler and Case Packer. Sausages are 300mL, 500mL, 600mL and are packed with 9, 12, 15 units/Case with nozzles loose in the Case.

Tottle

The Tottle line consists of a Filler with manual Case Packing. Tottles are 330 mL and 770 mL and are packed with 6, 8, 12 units/Case.

Tube

The Tube line consists of a repurposed Filler from the Padstow site and filled tubes are manually packed in crates for blister packing off site. Tubes are 5 mL, 10 mL, 50 mL, 100mL and 200mL.

Tub

The Tub line consists of a Filler and with a 3rd party Case Packer. Tubs are 250 mL, 400mL, 500mL, 1100mL, and 2300mL and are packed with 2, 4, 6, and 12 units/Case.

SPAK Tub

The SPAK Tub line consists of a Filler and with a 3rd party Case Packer. Tubs are 250 mL, 400mL, 500mL, 600 mL, 1100mL, and 2300mL and are packed with 2, 4, 6, and 12 units/Case.

Staff

Staff within the new factory will initially be based on a 2 shift 5 day a week system but with the capability to run on a 24/7 shift pattern should the need arise.

On a 2 shift system there is a small decrease in operational staff numbers based on the increased levels of automation within the plan, whilst this increases beyond current numbers if additional shifts are brought on to accommodate increased customer demand.

Car Parking & Traffic

Employee, contractor, and visitor parking has been accommodated within the site, with car modelling showing that the car park did not exceed capacity at any point during the survey period. The principle car park for site has 211 parking spaces with a maximum of 172 used at peak periods.

Hours of Operation

Hours of operation will be 0600 to 2200 as a base condition but may run on a 24/7 pattern based on needs.

Existing offices will continue to run on typical office hrs

Customers / Visitors

Visitors to the site are limited and are managed during normal business office hours, unless there is an emergency and works are required immediately.

Equipment contractors are managed through maintenance operating system and are expected to be on site as per agreed schedules.

Site Deliveries & Truck movements

Vehicle movements throughout the site will be managed by an internal traffic management plan. Vehicles (including trucks and tankers) will visit site to deliver raw materials, provide maintenance to the manufacturing operation and to pick up finished goods.

It is expected that there will be routinely approximately 28 heavy goods vehicle movements per day to/from the site.

Internally trucks will be able to traverse the site without exiting to Gow street by use of the internal road loop.

Finished Products

Transfer of finished products to the end customer is achieved via a 3PL transport solution, with a shuttle transporter acting between the site and 3PL location in Marsden Park. Frequency of finished goods dispatch is 2 – 4 trucks per day.

Expected maximum production for the overall site is 41.1 million filled product units (15,972 tonnes Kg), split broadly 9.2 million units (2,948 tonnes Kg) from existing factory and 31.9 million units (13,024 tonnes Kg) from the new factory proposed within this DA.

Raw Material Volumes

Raw materials and Packaging components are delivered to site in trucks (including semi-trailers but not including B-Doubles) and road tankers (for bulk liquids and powders). Infrequent deliveries of small raw materials may also arrive by courier van and ute. In 2031, a typical maximum of 10 heavy goods vehicle movements per day are expected for chemical raw materials. A similar quantity is expected for inbound packaging components.

Waste Management

Estimated weekly waste volumes are shown in the table below:

Type of Waste Generated	Reuse	Recycling	Disposal	Method of on-site reuse, contractor and recycling outlet and /or waste depot to be used
	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	Estimate Volume (m^3) or Weight (t)	
Mixed organics	0 m^3	0.1 t = 0.3 m^3 per week	0 m^3	Recycling Management Centre
Comingle recycling	0 m^3	0.2 t = 3.5 m^3 per week	0 m^3	Recycling Management Centre
General waste 1[1]	0 m^3	0 m^3	4.3 t = 28 m^3 per week	Waste Management Centre
General waste 2[2]	0 m^3	0 m^3	0.04 t = 0.4 m^3 per week	Waste Management Centre
General waste 3[3]	0 m^3	0 m^3	3.6 t = 5.1 m^3 per week	Waste Management Centre
General waste 4[4]	0 m^3	0 m^3	0.1 t = 0.4 m^3 per week	Waste Management Centre
Chemical waste 1[5]	0 m^3	0 m^3	0.04 t = 3.6 m^3 per week	Waste Management Centre
Chemical waste 2[6]	0 m^3	0 m^3	0.12 t = 0.1 m^3 per week	Waste Management Centre
Chemical waste 3[7]	0 m^3	0 m^3	11 t = 8.4 m^3 per week	Waste Management Centre
Cardboard	0 m^3	3.6 t = 38 m^3 per week	0 m^3	Recycling Management Centre
E-Waste	0 m^3	0.01 t = 0.1 m^3 per week	0 m^3	Recycling Management Centre
Empty metal drums (200L)	0 m^3	4.3 t = 4.8 m^3 per week	0 m^3	Recycling Management Centre
Empty IBCs (1000L)	0 m^3	0.85 t = 85 m^3 per week	0 m^3	Recycling Management Centre
Pallets	0 m^3	0.2 t = 1.2 m^3 per week	0 m^3	Recycling Management Centre
Trade wastewater	0 m^3	0 m^3	200,000 L = 200 m^3 per week	Sewer Discharge (Ref Section 4.2.1)

Services

Compressed air will be provided by compressors and air dryers to ensure sufficient and high quality compressed air for manufacturing.

Electrical Power Supply Electrical power will be supplied to the site by 3 incoming HV Kiosks supporting differing areas of the proposed development.

Water for the process will be pre treated on site from potable water and used as an ingredient to the manufacturing process alongside being used as a cleaning medium on production equipment.