**Smart System Ltd Part A & B Permit KP3434FE variation & Non-technical summary.**

Smart Systems are currently operating 4 powder coating plants, and 3 effluent treatment plants in accordance with local position statement dated 22 September 2017 and permit KP34343fe. The decision to delay varying the existing permit was made due to ongoing works on site, likely completed before permit variation could be achieved. Said works are now completed to such a point whereby no additional coating operations are expected to be installed for a number of years, and land holdings are stabilised.

The installation and operation of the new coating lines has increased the combined capacity of pre-treatment tanks on site and its location requires the extension of the permitted area. Note the physical boundary and facilities of the site have been expanded to enclose the entire land holding of the business.

The “vertical two” plant installed is a replication of the existing “vertical one” line: consisting of 2 main ovens, fully insulated with revolving access & egress doors with a curing temperature between 180 and 200oC: with potential to reduce as powders improve; 2 vertical powder coating booths allowing 98% recovery of excess powder particles for reuse; and 13m3 of cascade sump pre-treatment tanks, consisting of aqueous treatment and rinsing, whilst using recovered heat for drying. This plant’s maximum capacity its ~500m2 per hour of powder coverage, being utilised on common colour lines for maximum production efficiency, with minimised powder waste, whilst maintaining an near chrome and solvent free process.

The original “horizontal line” has been replaced and relocated within the factory layout: allowing for better production efficiency, installation of extrusion press 4, reduced coating rejects, and modernised process control.

Supplementing these is the newly installed “panel line”, purpose build for the coating of door and inset panels: designed to maximise process efficiency internally and within the coating operations as a whole.

Vertical one and the horizontal line continue to use the originally permitted effluent plant, vertical two and the panel line are serviced by dedicated effluent treatment plants. Each effluent plant has an individually monitored and controlled discharge to the site’s foul sewer network; combining for discharge to the public foul network.

The effluent plant process allows the treatment and recycling of waste water, reducing the usage of fresh / Mains water. Solids, chemicals and organic substances from the waste water are reduced or removed to allow reuse in some circumstances with reminder going to foul. All 3 effluents plants have filter presses that separate the liquids and the solids using pressure filtration, the solids are captured into a ‘Cake’ while the liquid is allowed the flow into a holding tank where the pH is tested to make sure its within permitted limit before discharge to foul.

Prior to waste water treatment it is processed into one of the 4 following tanks on Effluent 1 – Alkaline Rinsing, Alkaline Concentrate, Acid Rinsing and Acid Concentrate, or Just Acid or Alkaline on Effluent 2 and panel line. Set pump flowrates manage alkaline / acid rinsing and concentrate: controlling pH value entering the Coagulation Tank, where Ferric and  HCL are added in small additions to adjust the pH. Overflow to a neutralisation tank where Lime milk is added brings the pH value to between 7-8, subsequent overflow to the flocculation tank and then to decantation where the filter presses capture solids while the liquid flows into the final waste container for sampling before being sent to drain.

Effluent plant systems contains pH alarms on 3 different stages, Coagulation, Neutralisation and Final waste tank. Should final stage sampling detect out of tolerance, or near out of tolerance, material, the system will shut off and alarm. It will only restart when pH is within limit, the system is password protected by senior staff to allow resumption or alteration of parameters.

Water utilised in the process comes, in part, from an extended combined flood attenuation and rainwater harvesting system, with a new total capacity of 3000m3 storage, supported by mains supply.

The entire site, since December 2015, is operating under a BSi certified Energy Management System (ISO 50,001 : 2018), and since 2017 the product has been listed under BES 6001 Green Book, in addition to the long standing Environmental, Quality and Health & Safety Management Systems.

There is no anticipated noise increase, at the site boundaries, as a result of this installation. There is no anticipated odour generated by the process and emissions to air will only see an increase in combustion gases from integrated gas boilers and burners: an assessment regarding MCPD implications is ongoing contained in this submission.

Installation is deemed to be in line with published BAT guidelines.



Tobias Robinson

Dudden Ltd on behalf of Smart Systems Ltd