

drying

Watching Paint Dry

If you find yourself willing your coatings to 'hurry up and dry' you may need to have a look at some of the latest drying technology from Thermo Catalytic Systems Ltd.

Recently, T.C.S. added its latest model 'Cat-Box' oven to its test and demonstration facility in Cheadle.

The "Cat-Box" oven is essentially a 3-m cube made from polished stainless steel and fitted out with two Bruest flameless gas catalytic heaters certified to Zone 1 standard and fully tested by British Gas and marketed by them and Transco.

This low temperature oven is designed to provide a clean and warm curing environment to accelerate the curing of coatings, thereby alleviating the bottleneck at the drying stage and freeing up racks, trolleys and valuable floor-space.

The Cat-Box is especially suitable for the curing of heat-sensitive lacquers applied onto wood and wood-based products. For example, curing times of less than 15 minutes can be achieved with acid catalysed lacquers. The Cat-Box starts at £ 9,975: this means it soon pays for itself in increased production.

How it works

Two Bruest thermocatalytic heaters inside the oven provide an economical source of heat, which is completely safe even in the presence of flammable solvent liquids and vapours. The bright polished stainless steel enclosure reflects infrared around the interior of the oven and onto the work pieces. The controlled temperature and gentle air movement combine to produce rapid and thorough curing drying of stains, paints, lacquers, and glues, be they acid catalysed, pre-catalysed, polyurethane or water-based. This is achieved in a fraction of the time required for curing in ambient conditions, and without 'solvent-pop', 'bubbling' or over-cure. In fact, drying times are cut by between 60 - 85 %. The Bruest heaters will also consume solvent vapours thereby reducing V.O.C. emissions.

Bruest Flameless Gas Heaters

Although, the heaters run on gas, (be it from cylinders, a tank, or mains) there is no flame whatsoever. Once the heaters have warmed up to reaction temperature using their in-built electrical pre-heat elements, the Platinum-based



Twin Bruest heaters on articulated mobile stand

catalyst combusts the gas flamelessly in an entirely safe manner.

There is no risk of their igniting the explosive vapours evaporating from solvent-based paints, even without a flash-off period. Bruest thermocatalytic heaters will not ignite flammable vapours or liquids such as paint solvent "In fact, to demonstrate the safety of the heaters we drip paint thinners right into the face of the heater

while its running at 400 degrees C," says T.C.S.'s M.D., William Miller, who pioneered the introduction of industrial catalytic heaters in the U.K.

In fact, Bruest thermo-catalytic heaters are safer than most types of electric infra-red whose tubes and elements are susceptible to blowing and which can be expensive to replace. Bruest heaters are also more effective than electric infrared as their emission spectrum ideally matches the absorption spectrum of coatings. If you have mains gas, they are of course, several times cheaper to run than electric units.

Catalytic Box Ovens

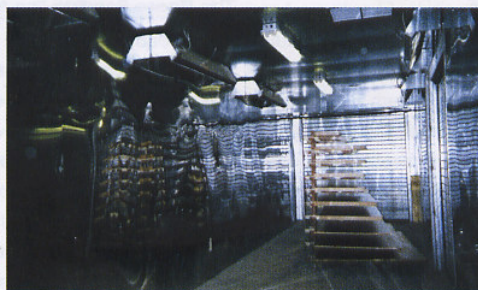
Catalytic box-ovens with air re-circulation are not new. One such oven, using Bruest heaters, was installed in Foden Trucks as long ago as 1995. T.C.S have been involved with catalytic box ovens for wood finishing for several years supplying companies such as Fireplace Gallery, Prentice Furniture and

Swift Horsman to name but a few.

At Woodmex 2002 T.C.S. launched the latest model Cat-Box, an all stainless steel enclosure. As most wood finishes require temperatures around 30 to 40 degrees C, (and certainly no higher than 60 degrees C) there is no need to make a double skinned insulated oven. Rather, the Cat-Box is single-skinned, which reduces the manufacturing cost.

The Cat-Box will flat pack for convenient shipment. It then bolts together for easy self-assembly.

The Cat-Box is a standard product, which means further production cost savings that T.C.S. can pass on to the customer. (Of course, T.C.S. continue to make bespoke thermocatalytic ovens of all types, shapes and sizes.) Prices start at £ 9,975 for the basic model. Optional extras include a second pair of doors to allow a "through feed" system and lighting (Zone 1).



A bespoke 3.5m x 12m Cat Box oven at swift Horsman, Herts. this has tripled production for it's manufacturer of high-end office interiors

profile

Individual Wall-Mounted Heaters

Bruest heaters can be installed inside a spray or drying room to speed up drying and eliminate blooming. "There is little point in having a catalytic heater which is safe in a hazardous area unless the electrical fittings on it are also certified for use in such areas", says William Miller. "That's why our Bruest heaters are fitted with Zone 1 junction boxes and cable glands as standard, this allows their permanent installation inside drying rooms and spray-booths; they do not have to be mobile units. We provide heat-resistant cable and all necessary gas control equipment to install the heater. We even provide wall-mounting brackets. All that is required is a gas supply."

VOCs or solvent vapours passing over the face of the heater are combusted flamelessly in the same manner as the fuel. Hence, solvent destruction is a side effect of their use. They actually help clean up the atmosphere in the paint shop. As there is no flame, the sole products of combustion are carbon dioxide and water vapour. There are no emissions of carbon monoxide, nitrogen oxide or sulphur dioxide.

The Bruest heaters themselves are made of stainless steel. This makes impossible any corrosion caused by the heat and water vapour produced by the combustion of the gas. Were other materials used, corrosion could eat the heater from the inside out.

Drying Room Conversion

Bruest heaters allow you to turn your drying area into a low temperature oven. By lining the walls of the room with foil-backed foam insulation boards, infrared from the heaters can be reflected around the room and onto the workpieces. The addition of a re-circulation system means that your drying room now functions in almost the same way as a box oven, at lower cost. In fact it was such systems that gave Bill Miller the inspiration for the Cat-Box oven.

Mobile Heaters

Bruest heaters may be fitted inside spray and drying rooms; however, where a safe, mobile heat source is required T.C.S. can supply mobile heaters running on bottled gas. Or, they can be fuelled from a gas mains supply fitted with a number of quick-release couplings.

Once the heaters have finished their electrical pre-heat they run on gas alone. The electrical supply can be disengaged and the heater brought in to the hazardous area (Spray-room or drying room). They can even be used outdoors. Alternatively, T.C.S. can fit a Zone 1 electrical plug on the heater so pre-heating can take place inside the hazardous area. This is possible because all the fittings on the Bruest heater are Zone 1 approved.

T.C.S. supply mobile stands in 2 variants. The simple A-frame stand (exhibited at Woodmex) is the most popular. However, sometimes you need to be able to raise, lower, angle and rotate the heater to direct the heater at "hard-to-reach" areas. In such cases an articulated, adjustable stand is

preferred. Both types of stand will flat pack for easy delivery and assembly.

Process Ovens Curing of Water Based and Powder Coatings

Water-based coatings can be cured in seconds when directly heated by the Bruest catalytic heaters. For example, water-based paints onto architectural mouldings and skirting boards can be cured in 10 seconds. This means that ordinary water-based coatings can be cured almost as quickly as U.V. coatings only you get to use gas instead of electricity, leading huge energy cost savings. The technology provides a practical and cost effective means of curing compliant and environmentally friendly coatings.

Thermo Catalytic Systems Ltd.

Bruest T.C.S. design, manufacture and install complete catalytic infrared curing systems using the Bruest flameless gas catalytic heater. They also supply other manufacturers of industrial finishing plant with Bruest heaters, and if desired, control packages. Their customers include BAE Systems, Ford/Jaguar and CORUS (formerly British Steel). T.C.S. Ltd. are the exclusive agents for the Bruest heater manufactured by Kansas based Catalytic Industrial Group Inc. (Web site www.cat-group.com). The Bruest heater is



The Cat-Box from T.C.S. cures a.c lacquers in less than 15 minutes

Zone 1 approved and has been tested and marketed by British Gas and Transco.

Test Centre

T.C.S. opened the test centre in 1999. It is equipped with wet-spray and powder-coating equipment with which they can coat a variety of products and then cure them using their catalytic systems e.g. their monorail process oven and their mobile heaters. This establishes a curing schedule for the particular product allowing T.C.S. to guarantee the quotation while giving the customer total peace-of-mind. Numerous coating suppliers, designers of complete finishing systems, systems-houses and of course potential end users have visited the test centre prior to specification of curing systems. The latest Cat-Box is now available for similar trials or demonstrations.

Trying Times

According to William Miller "We are so confident in the heaters that we often simply ship them to potential customers on approval allowing them to try the heater for a week. We ask only that they pay for the shipping. So far, in every case, they bought the heater." If drying times are a problem for you why not contact T.C.S. for a trial, or visit their test centre. Says William Miller: "It should be a very worthwhile experience - at the very least, it beats watching paint dry!"

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