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Smart flooring choices... Industry Specialists Edward Fitzgerald & Lewis Leadeatt from Gerflor map out the argument for choosing vinyl over resin flooring.

Historically Epoxy resin has been used as the flooring of choice for specialist facilities in life sciences, high technology, and precision manufacturing. But with the growing need and trend for further flexibility and rapid maintenance to ensure production isn't disrupted, as well as the requirement for all leading companies to improve their carbon footprint and meet aggressive Environmental, Social, and Governance (ESG) targets, Epoxy resin is now being seen as the 'dinosaur' of the flooring industry.

Vinyl flooring presents a compelling case for those considering their options, particularly due to its recyclability, durability, and cost-effectiveness. It offers a wide array of design choices, while also providing a practical solution for areas with high moisture or traffic. Moreover, vinyl is known for its ease of installation and maintenance, making it an excellent choice for industrial spaces.

What is GTI and what are the benefits?

GTI is a technical vinyl tile that is now a new generation of industrial flooring, an endlessly flexible product innovation, which is fast and easy to install, even over most existing surfaces, it is built to stand the test of time and is extremely durable and hardwearing. Available in striking designs, it is resistant to a wide range of chemicals and heavy dynamic loads (110kg/cm²). Fast renovation is a key benefit for industrial sites, in a matter of minutes the tiles can be installed without any disruption to production. No wonder that it has become one of the fastest growing product categories in the flooring industry, as businesses and specifiers are reaping the benefits and using GTI in vast numbers.

What are some of the challenges with Epoxy Resin when installing?

Every facility manager will be familiar with the age-old disadvantage of epoxy, 'micro scratches. These tend to appear immediately after installation and develop in time to cracks and then flaking of the Epoxy as it wears. Even though this causes some disruption to production, it is what happens next during maintenance which has the biggest effect. Due to Epoxy being bonded to the substrate of the building, the only way to effectively renovate an affected area is to grind the floor down to the original substrate. This process creates huge amounts of dust and particulates, which in a cleanroom or sensitive production area is highly problematic. Once ground down the different layers of Epoxy need to be built up to create the final finish. Each layer is a new chemical being brought into the facility and takes a number of hours or even days to cure before the next layer can be installed.

The number of "layers" is dependent on the system. Usually, a minimum of two but can be up to five/six layers, these then all require minimum of twenty-four hours for curing between coats. The finished systems generally require seven days to fully cure (some like polyaspartic can cure in twenty-four hours but cost five - ten times more than standard Epoxy resin).

The installation time associated with Epoxy resin can potentially cause a huge amount of disruption to production or the construction programme, as areas have to be zoned off for long periods of time for this work to take place. Plus, the issues and extra labour required in cleaning away the dust and potential risk of damaging HEPA filters from the VOC's, and other gases given off during the installation of the new epoxy flooring can also be extremely problematic.

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During the Epoxy application process, wet epoxy gives off an unpleasant smell. Installers wear masks and safety goggles to protect themselves, as the fumes are not only unfavourable in scent but can also be highly toxic.

Highly asthmatic individuals should proceed with great caution during the application of Epoxy flooring. The area receiving an Epoxy application should be thoroughly ventilated to protect any persons near the space from the hazards of Epoxy fumes. However, after the epoxy is fully cured, there is no longer a smell unless the coating is further sanded, causing Epoxy resin dust to enter the air space.

Why is GTI a game changer over Epoxy Resin when installing and for maintenance?

In comparison, GTI solves all these problems, as it is a loose lay installation. There is no need to grind down the floor, it can be installed over most existing flooring, even those with cracks, ceramic tiles, Epoxy, and other vinyl. Due to the flooring not needing to be glued down, it can accept oil-soaked substrates or high levels of moisture.

There is no risk of VOCs being present in the area, as no adhesives are used in the installation process of the flooring. But the biggest benefit of the solution is that as soon as the tiles are laid in a matter of minutes, the flooring can be used. There is no curing time, building up of layers and areas do not need to be zoned off for weeks on end for the installation work to take place.

Another benefit is that individual tiles or small areas can be easily and quickly replaced. even when the cleanroom or production zones are in operation, giving ultimate flexibility in terms of maintenance schedules.

Epoxy resin can also be susceptible to damage. Despite their durability, Epoxy floors can be scratched, stained, or damaged by heavy objects or dropped tools. This is especially true in high-traffic areas. With GTI, the product is robust and hardwearing and comes with a revolutionary PUR+ surface treatment for additional protection and peace of mind.

Can I get GTI Vinyl but for ESD applications?

GTI EL5 Connect (dovetails) and GTI EL5 Cleantech collections are ESD versions of the original and ultimate GTI product. These innovations have been factory certified to be conductive ESD and ATEX floor coverings.

This means that the tiles will perform in terms of the electrical resistance of the (in ohms) level required as soon as they are laid, and it will be consistent across the area installed.

The Performance of Epoxy ESD floors that are mixed on site are subject to the atmospheric conditions during curing, as well as the skill of the installers. Areas of the floor will have inconsistent resistance levels, depending on the dispersion of the carbon powder during mixing and laying. This could mean certain areas of the floor fail to meet the ESD requirements and therefore have to be re-laid, this can cause further delays or risk of a nonperforming ESD or ATEX floor. Much of this has been evident in the fires that have taken place in gigafactories across the world.

What are the benefits of GTI Vinyl for Staff Well-being?

The wellbeing and health of employees is always at the forefront of a company's structure. Any improvements in terms of ergonomics and reducing fatigue are always welcomed.

With many employees in production facilities spending large parts of their days on their feet or walking through the facility, the floor that they are walking on can greatly affect their levels of fatigue and muscular tiredness.

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A recently independent study compared the reduction in fatigue and improvement of ergonomics when replacing Epoxy floor with a GTI vinyl solution. The results were impressive with a 15% reduction in shocks and vibration on the body when walking and an overall 10% reduction in fatigue of the person.

Epoxy floors are hard and therefore there is also contact noise during walking. For personnel who are working in those environments, where noise is high, it is proven to increase stress, thus there is a greater risk for accidents to take place as people are unable to hear what is going on, as well as possibly damaging hearing over time. Noise also increases vibration and so if experiments/production are sensitive to vibrations, then this can greatly affect the outcome of the production or experiment.

Finally, if there is some work that is done with animals for veterinary medicine, it is especially important to keep noise to a minimum so not to stress the animals.

Without underfloor heating, an epoxy floor feels somewhat cold, similar to tiled floors. Not so applicable in terms of underfloor heating, but more applicable to the transfer of heat away from the body from concrete/Epoxy floors compared to GTI. People who are standing for long periods of time will feel colder from standing on Epoxy when compared to GTI, because concrete conducts heat quicker compared to GTI.

What are the environmental credentials of GTI Vinyl Tiles?

GTI has a minimum of 54% recycled content within it. Due to it being made from PVC, which is endlessly recyclable, at the end of its life, it can be ground up and made into new flooring.

Due to being a loose lay solution, it saves on the requirement of any adhesives during installation and no volatile VOCs are brought into sensitive industrial environments. GTI vinyl is also 100% REACH compliant, Floorscore® certified, free of formaldehyde, free of heavy metals and solvents and manufactured in an ISO 14001 and ISO 50001 certified site. GTI vinyl delivers TVOC emissions 10 times better than norm requirements (TVOC < 100 µg/m³ after 28 days). GTI Max is 100% recyclable and also LEED or BREEAM accredited.

In summary, what are you saying?

Epoxy resin flooring may boast a longer lifespan, which might justify its higher initial cost for some projects, but installation times can be significant and can be problematic on site, impacting on the productivity of end users.

Epoxy is also unable to meet the modern-day requirements of being ecological, introducing aggressive VOCs into production areas and unable to be recycled. Epoxy floors also do not deliver consistently the comfort and noise reductions of alternative vinyl floorcoverings, such as GTI.

If you want a facility that is flexible, long lasting, easy to maintain and flooring that is quick to repair, then the GTI vinyl innovation is something to seriously consider. With faster installation possible for renovation and new build works, that also performs to the standards required from day one, whilst also continuing to perform many years after Epoxy has failed, meeting and exceeding ecological and ESG requirements, then there really is only one option, GTI Vinyl Technical Tiles.

With over 50 years combined experience, the industry experts are here to assist with all specification enquiries. Email edward.fitzgerald@gerflor.com or lewis.leadeatt@gerflor.com for support, call 01625 428922 or visit gerflor.co.uk for more information.

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