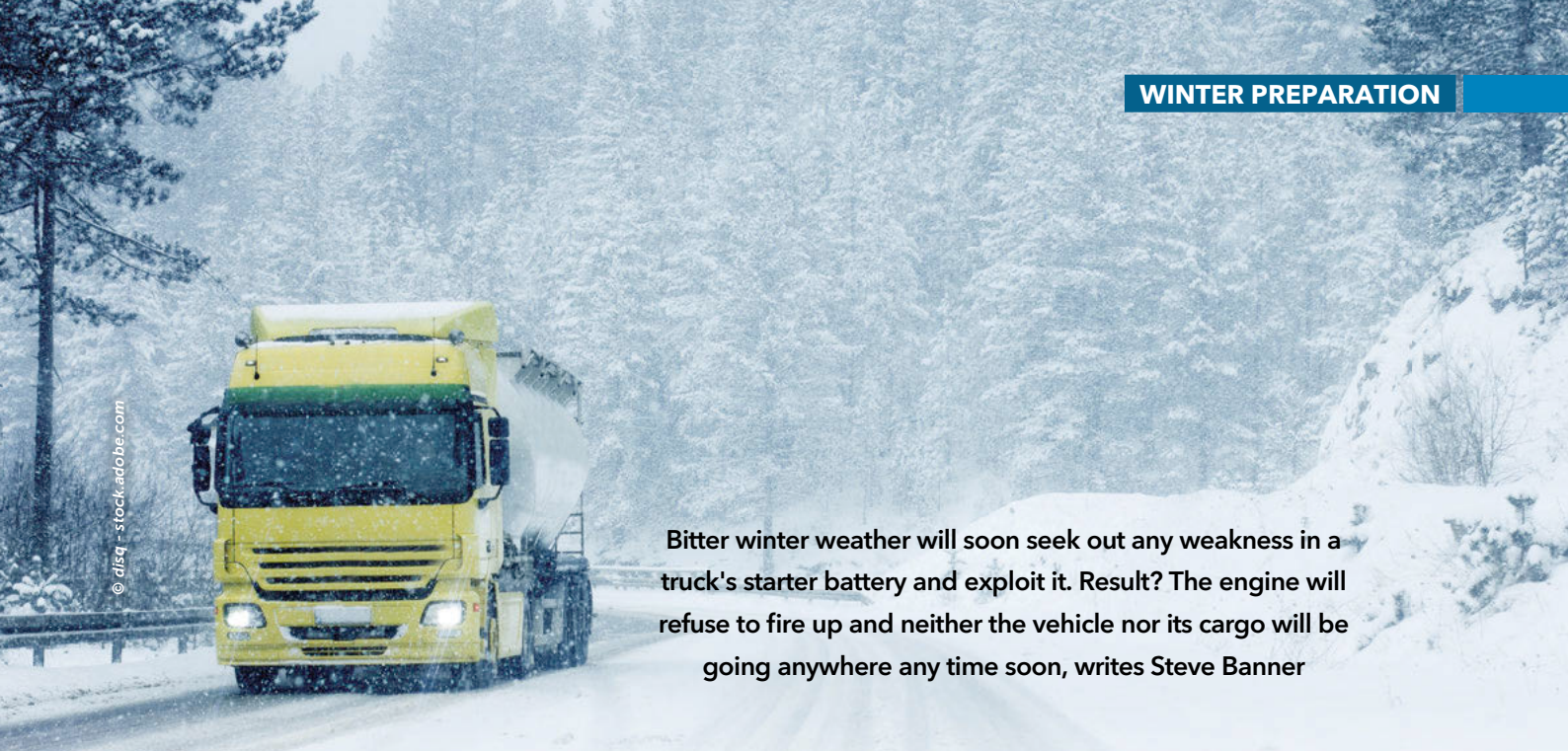

Bitter winter weather will soon seek out any weakness in a truck's starter battery and exploit it. Result? The engine will refuse to fire up and neither the vehicle nor its cargo will be going anywhere any time soon, writes Steve Banner

Cold vehicle starts

Starter batteries are arguably more vulnerable to failure than they have ever been whatever the weather, given the increasing pressures placed upon them. While stop-start technology has yet to be adopted to any great extent by truck manufacturers, the hotel load imposed on a battery by features such as in-cab fridges, microwaves and coffee machines can soon deplete its strength.

The hot microwave meal prepared by a driver on a chilly December night could turn into cold comfort the following day when the engine declines to turn over.

Varta believes it may have the answer in the shape of the ProMotive AGM – absorbent glass mat – battery for truck, bus and coach applications, says UK marketing manager John Rawlins. The Varta brand is owned by Clarios, formerly known as Johnson Controls Power Solutions.

Available in cars and light commercials for several years, an AGM battery is designed to withstand up to six times the discharge rate of a conventional lead acid battery, Rawlins explains. "We originally developed one for trucks in conjunction with MAN, but we now have several other OE customers, including Volvo and Scania," he says.

Like a conventional starter battery, an AGM battery contains lead plates plus an electrolyte made from a mixture of water and sulphuric acid. "The electrolyte, however, is held in glass fibre matting which sits between the plates," Rawlins explains.

"The idea is to prevent stratification," he continues. This is where the acid and water start to separate, with the former remaining at the bottom, and the latter rising to the top. With the plates covered with acid to only half their height, the battery is half as effective as it should be. Soaking the electrolyte into matting prevents this from happening.

However, AGM batteries can be significantly more expensive; the more sophisticated a starter battery is, the more you can expect to have to pay.

Aware of the cost pressures on its customers, Varta introduced an enhanced version of its lead acid commercial vehicle batteries a couple of years ago, says Rawlins.

They feature an agitator which uses the movement of the vehicle to keep the electrolyte circulating and reduce the risk of stratification; not as effective as an AGM, but a useful halfway house.

Varta is not the only brand investing in battery technology.

One of the biggest battery manufacturers in the world, and the owner of a number of established brand names including Hawker and Oldham, EnerSys has also developed a battery which it says will withstand high hotel loads and low winter temperatures. The Odyssey Performance Series TPPL (Thin Plate Pure Lead) AGM battery accommodates more lead plates in its casing than a conventional lead acid battery, says EnerSys, which makes it better able to withstand the pressures placed on it. The plates are 1mm thick, compared with a more usual thickness of 3mm.

Tests undertaken by EnerSys show that the energy-dense Odyssey TPPL 625-DIN C-1500 model can support a typical load for over 14 hours and then start the engine, states technical manager Dr Thomas Verghese. That compares with a competing product's far lower 6.5 hours'

endurance, he says. "Furthermore, the Odyssey battery can be stored with no load across the terminals, without recharging, for up to 24 months at 20°C," he observes. Conventional batteries can only achieve six months' storage life, he contends.

A battery will find it easier to start an engine on an icy morning if the engine has been filled with a lubricant designed with low temperatures in mind. "You want lubricant to be thin at low temperatures but thick at high temperatures," says Robert Lundie, Exol Lubricants' technical services manager. "It's all about the widest possible range of viscosity."

He continues: "For most of the UK a 15W40 is usually fine, however if you operate in the Highlands of Scotland in the winter then you may want to look at a 10W30 or 10W40. If you regularly go to Scandinavia or eastern Europe during the winter months, then a 0W30 or 0W40 could be more appropriate. A 5W40 is a good option too, though, because it can cope with temperatures down to -30°C. Even in Germany it can drop to -20°C in the winter."

Even if your battery is fighting fit and your lubricant is the right specification for the prevailing weather conditions, your vehicle will not be going anywhere if the diesel in your bulk tank is full of wax crystals thanks to the cold, and will not flow properly.

Certas Energy supplies an additive called Anti-Wax which can combat this risk, says fuel and services product manager Rebecca Swann. "It allows engine operation at colder temperatures than the original fuel specification by co-crystallising with the wax crystals to change their shape and make them smaller," she explains. As a consequence, the diesel's flow is not impeded.

Anti-Wax should be added to the tank's contents before the surrounding temperature starts to fall, she advises. "It is best added when a) it is above 6°C; b) the forecast is showing below - 5°C; c) the fuel is above its cloud point," says Swann. "If the fuel is already waxed, then the additive will not work.

"For the most effective application, check that the fuel that's about to be treated is clear and unclouded," she adds. "As wax tends to sink once formed, the best way to test this is by taking a sample from the bottom of the tank."

If the diesel is clear, then both it and the additive should be mixed using a submersible pump for the best results. Using the resulting mixture will not invalidate vehicle manufacturers' warranties, says Certas.

TANK CONDITION

All this presupposes that your bulk tank is in a fit state to withstand another winter. "Be sure to check it regularly for any signs of wear and tear such as cracks, deformation and weather erosion," Swann says. "Water, sludge and sediment can build up over time in a tank, and during winter time these contaminants can freeze, blocking supply and creating wear in fuel systems," she observes. "That's why it is important to check tanks for any signs of them before temperatures drop.

"Ideally businesses should check bulk tanks for water weekly or monthly, depending on the outdoor temperature, to prevent the microbial build-up that causes corrosion," she continues. "Take samples from the top, the middle and the bottom of the tank," Swann advises. "Anything that isn't clean fuel should be removed immediately through polishing or filtration to prevent future issues.

"Once the contaminants have been removed, test the fuel again to ensure it is clean and ready to use." If high levels of contaminants are still found, then the tank will need a professional deep clean.

Batteries, lubricants and fuel are not the only areas that require attention. Winter tyres may have to be fitted and snow chains made available depending on where your vehicles are going, anti-freeze levels will have to be checked and the screenwash mix may have to be made stronger to prevent the reservoir's contents freezing.

Drivers will have to be advised to equip themselves with boots, warm clothing including a hat and gloves, a shovel, a flask of coffee, and an emergency store of snacks. They will also have to ensure their mobile phones are kept charged up so they can summon help if they get stuck.

Most importantly, their trucks and trailers will have to be thoroughly serviced before the first flakes of snow start to drift down. Winter will soon identify any faults that have not been addressed, and take advantage of them. TE