



Turbo Cleaner & Power Restorer

General Instructions for the application of Revive turbocharger cleaning fluid

What is Revive?

Revive is a surfactant based cleaning fluid. It is 100% water soluble, non-toxic, non-flammable and biodegradable.

Revive is designed to remove the dirt and hydrocarbons that foul the gas paths through diesel and petrol engines. Airborn deposits build up in the airways of engines, causing air starvation. In turbocharged diesel engines these deposits typically build up on the compressor, the intercooler, inlet and exhaust ports/valves and on the exhaust turbine and guide vanes. Symptoms of engine fouling are excessive black smoke, and over/under boost from the turbocharger.

What sort of vehicles and engines are suitable for Revive?

Diesel engines, petrol engines, turbocharged and naturally aspirated engines in cars, vans, trucks and buses.

Improvements using Revive are most noticeable on turbocharged diesel engines as the turbos are sensitive to fouling, especially those utilising variable turbine vane technology, and diesels are inherently dirtier than petrol engines.

Revive must not be used on two stroke engines (the gas path and lubrication path are common). Nor should it be used on engines that are not mechanically sound. Revive cannot "repair" damaged or worn components. The carbon and gum build up on old engines can be masking potential problems. Cleaning the carbon away on a mechanically unsound engine may then expose these other faults.

Additional considerations

Revive will not harm catalytic converters. However, if too much fluid is used in a single dose on a very dirty engine the dirt could be washed away too quickly and partially block the catalytic converter or DPF (See usage for recommended fluid quantities).

Avoid spraying fluid directly onto MAF sensors (mass air flow) in the inlet pipe. This is considered good practice to avoid contamination of this sensitive component.

www.turbocleaner.co.uk



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What equipment is needed?

The fluid should be sprayed into the air inlet using a hand operated sprayer. The nozzle should produce a fine spray with a flow rate in the range of 0.2 to 0.5 litres/minute (i.e. A single 250ml application administered in approximately 1 minute). Suitable sprayers can range from small hand pump pressurised containers that spray as you work the trigger (similar to those commonly used for brake cleaning fluid etc.), to larger ones that have a 3-5 Litre pressure container pumped up to pressure and feeding the nozzle via a length of hose.

A hand-held pressure sprayer is supplied in the Revive Starter Kit. The sprayer may be operated in the conventional upright orientation, or if dictated by the individual vehicle layout the bottle cannot remain upright to deliver all the fluid, may also be operated upside down by temporarily removing the fluid pickup tube from inside the sprayer. This is easily removed with a gentle pull, and then replaced by pushing back into position. The spray should be adjusted with the brass nozzle, only small adjustment is needed to produce a spray that flows down the inlet rather than hitting the side walls of the ducting.



Removal of the fluid pick up pipe for inverted use.

On Variable Nozzle / Vane Turbos, using a Mitivac hand pump to actuate the turbo vanes to raise the turbo to full boost, and cycle the vanes, greatly increases the cleaning action.

How should Revive be used?

A single "treatment" for a specific problem related to potential engine or turbocharger fouling, is considered to be 750ml, administered as three applications of 250ml dose as described below.

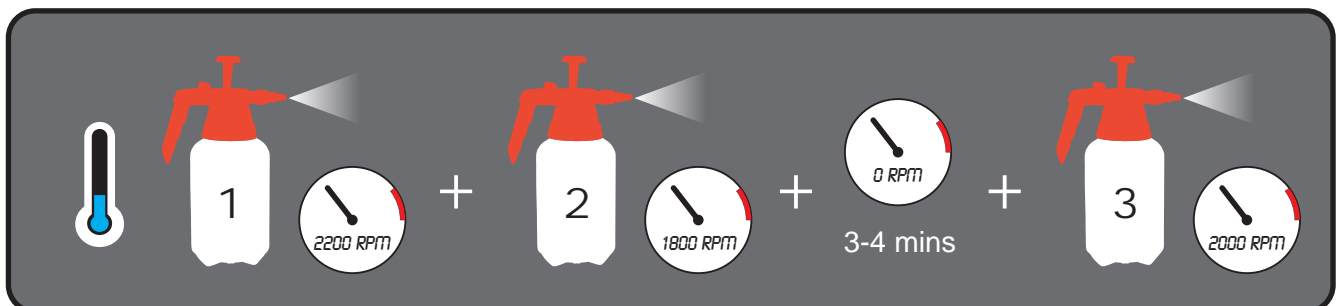
Revive is sprayed into the engine through the air inlet while the engine is running. The atomised fluid must be kept moving through the engine, and if there is a turbocharger, the engine speed should be enough for this to be spinning. For maximum benefit and to stop the fluid evaporating too quickly, it is recommended that the treatment be applied to a cold engine.

1. Open up the air inlet to the engine (see Note overleaf *)
2. Run the cold engine at about 2200 to 2500rpm and spray in 250ml of fluid. Adjust the spray to deliver the 250ml over approx. one minute. Do not allow spray nozzle components to accidentally drop into the inlet airflow!

- Drop the revs to around 1800rpm and spray in the second 250ml
- Stop the engine immediately. As the engine has not had time to get hot, the amount of fluid which evaporates will be minimal, allowing it to soak into the deposits.
- Allow the fluid 3 or 4 minutes to soak.
- Restart the engine and run at around 2000rpm, then inject a final 250ml of fluid.
- Keep the engine running between 1500 and 2000rpm for several seconds after the injection has finished to ensure it is all taken through the engine. During this third injection you will probably see white smoke coming from the exhaust pipe, this is the vapourised fluid. Keep the engine running until the white smoke stops.
- As soon as possible after the treatment, drive the vehicle reasonably briskly for 20 to 30 minutes so the airflow through the engine blows the deposits out.

*** Note regarding step 1.**

- Disconnect the air inlet pipe from the air filter or MAF sensor if fitted.
- Spray the fluid into the engine as close to the inlet of the turbocharger as practical.
- Do not spray fluid through MAF sensors (mass air flow) in the inlet pipe.
- Do not spray fluid through the air filter.



When should Revive be used.

The engine should be kept clean with regular treatment. Letting the deposits build up in the engine can create the problems described previously. We recommend treating the engine with Revive periodically as a preventative measure to avoid actual problems described before resulting from fouling occurring, the ideal time being immediately before a service. In the unlikely event of the material finding its way into the sump, an oil change will negate any potential problems.

If the engine has never been treated with Revive and is particularly smoky and performing poorly (but is mechanically sound) there may be benefit from cleaning with the recommended amount of Revive and then, the following day, given a second clean. The car must be driven briskly in between treatments. This is better than doubling the amount of fluid for a single treatment, as this can result in too much dirt coming away at once and potentially blocking the catalytic converter or DPF.

SAFETY DATA SHEET

1. Substance/Preparation and Company

Product Name: Revive

Use: Engine Cleaning Fluid

Supplier: SP Diagnostics, PO Box 3487, Chippenham
Wiltshire, SN15 9FH, UK

Tel. 0845 6016510, Fax. 08700 941753

Emergency Contact:
Tel: 0845 6016510 (office hours)

2. Hazards Identification

Not classed as dangerous according to Directive
1999/45/EC

3. Composition/Information on Ingredients

The product is a proprietary formulation based on 3 - 10%
non-ionic surface-active agent (ethoxylated fatty amine)

CAS No: 61791-14-8
EINECS: Polymer
Xn R22; R36

4. First-Aid Measures

General advice: None.

Skin: Wash thoroughly with water.
Contaminated clothing should be removed and washed.

Eyes: Rinse thoroughly with running water for a minimum of
10 minutes or until discomfort is relieved.
Seek medical attention if discomfort is not relieved.

Inhalation: No effect unless inhaled as an atomised mist, in
which case move to an area of fresh air. Seek medical
attention if exposure was severe.

Ingestion: Drink copious amounts of water.
Do not induce vomiting.

5. Fire Fighting Measures

None. Product is non-flammable.
If the product is involved in a fire, any normal extinguishing
media may be used.

6. Accidental Release Measures

Absorb with inert material.
Wash area with water. The product is completely soluble in
water and is readily biodegradable.

7. Handling and Storage:

Handling: No special precautions necessary but prolonged
contact with the skin should be avoided.

Storage: Store in original sealed containers.
Prevent from freezing. (above 0° C)

8. Exposure Controls/Personal Protection:

Respiratory protection: Not necessary

Hand protection: Rubber gloves are recommended if the
product is to be handled over a prolonged period or if the
user has sensitive skin.

Eye protection: Protective glasses will reduce the possibility
of any of the product being splashed into the eyes.

Skin protection: No special skin protection is necessary
when using the product under normal working conditions

9. Physical and Chemical Properties

Appearance: Clear liquid.
Colour: Amber
Odour: Virtually odourless
Boiling point: 100° to 105° C
Freezing point: <-3° C
Flash point: >100° C
Flammability: Non-flammable
Auto flammability: Non-flammable
Explosive properties: None
Oxidising properties: None
Specific Gravity: 1.007 to 1.017
Solubility: Readily soluble
pH value: 6.5 to 7.5

10. Stability and Reactivity

Stability: Stable
Hazardous reactions: None known
Hazardous decomposition products: None known

11. Toxicological Information

The product is categorised as non-toxic.
This product contains no ingredients considered to be
carcinogenic by OSHA, ACGIH, IARC and NTP.

12. Ecological Information

Mobility: Readily absorbed into soil
Persistence and degradability: Biodegradable
Bioaccumulative potential: No bioaccumulation
Other adverse effects: Negligible ecotoxicity.

13. Disposal Considerations

In normal use the product will not affect bio-treatment
plants, however local regulations should be adhered to.

14. Transport Information

Not classified as hazardous for transport.

15. Regulatory Information

Labelling: The product requires no formal warnings or
symbols as specified in CHIP 1993, regulation 9. It is labelled
as non-flammable, non-toxic, readily biodegradable,
negligible environmental toxicity.

Worker exposure Limits: There are no assigned exposure
values, by any regulatory authority, for the product or its
ingredients.

16. Other Information

The purpose of the above information is to describe the
product only in terms of health and safety requirements.
This information is accurate to the best of our knowledge
and no warranty is expressed or implied. Users should
satisfy themselves on the suitability and completeness of
the information for their own particular use.

Do not mix this product with any other chemicals, unless SP
Diagnostics has specifically advised to do so