

FAQ Green Marathon

CO2 Savings

- How much CO2 does the production of the Green Marathon save compared to the previous model of the Marathon?

The production of the new Marathon saves more than one third of CO2 compared to the previous model, about **41% CO2**. To determine the CO2 savings, a detailed Product Carbon Footprint (PCF) of both models was calculated and evaluated according to the common IPCC AR6 standard (GWP 100, excl. biogenic CO2).

Recycling/Circular Economy

- What is rCB?

The abbreviation rCB stands for recovered carbon black. It is obtained from used tires. In the recycling process at our partner Pyrum Innovations, the tires are mechanically processed (shredded) and then recycled in a thermochemical process known as pyrolysis. One of the outputs is pyrolysis coke, which is then further processed into rCB. We have now used the rCB for the first time in the production of a new tire. The complete recycling process is explained here: <https://www.schwalbe.com/recycling-system/>

- What is the rCB used for in the tire?

The rCB replaces 100% fossil-produced carbon black (vCB = virgin Carbon Black). The carbon black acts as a filler and reinforcing agent in the rubber compound. It influences the dynamic properties of the tire (abrasion, rolling resistance, wet grip) and is used for coloring.

- How is vCB produced?

The majority of virgin carbon black, or industrial carbon black, used worldwide is made by the so-called furnace process. In this process, fossil raw materials (crude oil and natural gas) are heated to temperatures well above 1000 degrees Celsius and then abruptly cooled. The product of this energy- and emission-intensive process is virgin carbon black.

What is the proportion of rCB from the Schwalbe Recycling System in the tire? What could be the maximum proportion of rCB in other future tires?

100% of rCB used comes from our Schwalbe Recycling System. The exact "recipe" of our tires is a trade secret

- How does the rCB get to Asia? Aren't the transport routes too carbon-intensive?

The rCB is extracted from used tires at our partner Pyrum Innovations in Germany and transported from there to Indonesia. The impact of the transport amounts to approx. 0.1kg CO2eq per kilogram rCB and thus only accounts for only approximately three percent of the total impact. Since the production of rCB emits 80% less CO2eq than conventional industrial carbon black, the reducing effects on the environmental impact are extremely positive.

- **What is the energy balance of recycling - including transport routes?**

It looks very positive overall. We are currently calculating a life cycle assessment of the entire recycling process as part of a doctoral thesis. As soon as it is ready, we will publish it. In principle, our transport routes are already more sustainable because we collect our products via bike retailers and not via the consumers themselves.

Overall, all transport routes account for only a small percentage (three percent) compared to the chemical processes that we can avoid through our recycling. Nevertheless, we are continuously working to reduce and mitigate emissions wherever possible.

- **Why does Schwalbe not produce tires in the EU, but in Asia?**

We have been producing our tires and inner tubes in close partnership with the South Korean family-owned company Hung-A in Southeast Asia since the Schwalbe brand was founded in 1973. This means that our factories are located where almost all necessary raw materials and materials are also extracted.

Production in Germany would increase our transport emissions by a factor of three and a half (calculated on the basis of the emission factors of EN 16258 and the Global Logistics Emissions Council (GLEC) and reference to the ecoinvent 3.6 database, as of 2022). In addition, there would be transports to the manufacturers, most of whom also assemble in Asia. For the climate, a relocation of the production site would not pay off.

At the same time, there are further advantages of our 50-year partnership with Hung-A: Not only do we know the people and processes very well, but we also have very high labor, human rights, environmental and quality standards at our production sites. There is a Schwalbe plant in both Vietnam and Indonesia. In addition, the know-how in the rubber industry in both countries is outstanding.

Raw materials

- **Why aren't 100% of the raw materials recycled and renewable?**

At the present time, the proportion of 80% recycled and renewable raw materials is the maximum possible. The fact that such a proportion is possible at all is due to our many years of research and development. Currently, we include the largest possible amount of recycled and renewable raw materials. Our goal is to further increase this proportion - but the range of "sustainable" materials currently available is not yet sufficient. We hope that research and technological developments will continue to progress in such a way that this will soon change.

- **What are the raw materials?**

The Green Marathon uses natural rubber, recycled rubber, recovered carbon black (rCB) from the Schwalbe Recycling System, recycled steel and silica from rice husk ash.

- **Of the 80%, what percentage is recycled and how much is renewable?**

The proportion of recycled components is around 30%, with a further 50% being renewable.

- **Schwalbe accepts tires and inner tubes of all brands for recycling. How does Schwalbe maintain a high quality when so many different inputs come in during recycling?**

That was the tough nut to crack for us and something we achieved with the new Marathon- mainly thanks to extensive research and development and many years of experience. Basically, if we were to take back only Schwalbe products, the recycling percentage in our products would be even higher. The fact that we take back all brands means that we encounter different quality standards.

Since our premium Schwalbe quality is an absolute priority for us, we determined the maximum possible percentage through countless tests, which guarantees that there is no loss in quality. This is currently around 20 percent for our tubes. However, we are naturally pursuing the goal of further increasing the proportion of recycled materials.

- **What exactly is Fair Rubber all about?**

The Fair Rubber organisation can be compared to the Fair-Trade seal for coffee - only for natural rubber. Through our membership in Fair Rubber, we pay an additional €0.50 for every kilogram of rubber we buy from certified smallholders and tappers. This amounts to about one third of the current world market price. This financial support reaches and benefits the people directly at the beginning of our supply chain. They decide what is done with the premiums. Their living standards are improved, for example, by renovating local schools to give children access to education. The Fair Rubber certified natural rubber from Indonesia comes from so-called jungle plantations. Unlike monocultures, this type of plantation preserves the high biodiversity of the rainforest. So far, we are the only tire manufacturer that uses Fair Trade natural rubber in its products and helps the people directly with a financial premium.

- **Why is Fair Rubber not in all Schwalbe tires?**

Unfortunately, Fair Rubber's capacities in Indonesia are not yet at a level where this is possible. However, we have already increased the proportion of Fair Rubber enormously - this was the only way we could manufacture more tire models with it and also produce the Marathon. We are working very hard to increase capacity even further so that we can produce more and more products with fair rubber. And to support even more local people directly with the premium.

- **What influence do recycled components have on riding characteristics and durability?**

We have conducted intensive research over an extensive period of time to ensure that, despite the high proportion of recycled and renewable materials, we can still guarantee the durability for which the Marathon is known for. And we have made no compromises whatsoever in terms of riding characteristics either. In doing so, we have achieved something great, because recycled materials often are often of a lower quality than new materials. We are continuously developing recycling technologies together with our partners so that we can further increase the proportion of the material in other tires in the future - and the product quality remains just as high.

- **Sustainability vs. mileage: Does the Marathon still set the benchmark in terms of mileage and durability?**

The Marathon remains the pioneer in terms of durability. It makes no compromises in terms of riding performance, grip and safety. Schwalbe's credo is always the combination of consistently high quality, maximum safety for the user and the maximum possible use of sustainable resources.

Product

- **Is the tire as suitable for normal bikes as it is for e-bikes?**

Quite clearly: Yes! The new Marathon is just as suitable for cyclists as it is for e-bikers. We have continued to further develop our ADDIX Tour rubber compounds. As a result, the new Marathon is a fast-rolling and very grippy tire that does not require any sacrifices in terms of mileage and smooth rolling. This is not different than with the first generations of e-bike tires. Construction and puncture protection of the Marathon have already proven themselves hundreds of thousands of times in use on e-bikes.

Pollutant-free

- **What does pollutant mean? In what way is it toxic or dangerous?**

A pollutant is a substance that can have a harmful effect on humans or the environment and the organisms living in it. Because the pollutants are trapped in the tire rubber, they do not pose a hazard. Since 2013, we have been reducing and replacing hazardous ingredients, wherever possible, with harmless alternatives. This is done according to the Cradle to Cradle® method.

- **What is this method all about?**

We optimize our products not only in terms of their technical performance, but for many years now also from an ecological perspective using the Cradle to Cradle® method. Here, all ingredients are evaluated according to the so-called ABCX system. Raw materials rated A or B are harmless and their use is recommended. Raw materials rated C demonstrate low harmfulness, but their use in bicycle tires does not pose a risk. Only for the materials rated X ("X raw materials") is the search for alternatives recommended, because these substances can lead to problems under unfavorable circumstances.

The tire is 99% pollutant-free - how harmful is the remaining 1%?

"99% pollutant-free" does not mean that the remaining 1% are harmful. This is because the X raw materials include not only the harmful substances themselves, but also non-hazardous raw materials that contain small amounts of harmful substances.

An example: The transparent plastic bottles frequently used to transport mineral water are made of PET (= polyethylene terephthalate). PET usually contains 0.02% antimony oxide, which must be added as a catalyst during production of the plastic. Antimony oxide is carcinogenic. However, in this case it is firmly enclosed in the plastic matrix and cannot escape during normal use of the bottle and endanger the consumer. However, if the bottle is burned, all the antimony oxide can be released.

This hazard - although incineration of the bottles is not common - is nevertheless taken into account under the aspect of risk prevention, and the PET is given an "X" rating.

Based on this understanding, even though Schwalbe tires contain up to 1% X raw materials, the proportion is even lower. The most important thing: These substances are firmly enclosed in the tire rubber and therefore cannot cause any damage.

- **Why can't the pollutants be replaced?**

Unfortunately, there is currently no alternative for these important ingredients that we can use in production. To eliminate the remaining 2% is one of our most important goals. That is why we are working and researching intensively on this - together with external experts and our partnerships in production and the supply chain.

- **When will Schwalbe reach the goal of 100% pollutant-free?**

Once alternative substances have been found, the hazardous ingredients will be replaced. Then the tire will be 100% pollutant-free. Intensive research is currently being carried out to achieve this.

- **What about competitors' tires? What percentage of pollutants do they contain?**

We cannot make any statements about the substances used by our competitors. What we do know: Our collaboration with the EPEA consulting institute and the C2C project is unique in our industry. This has enabled us to continuously replace pollutants and to reach the current 98% pollutant-free benchmark for the first place.

- **How harmful are other Schwalbe tires? Why is there not yet widespread use of the sustainable materials in Schwalbe products - when will this happen?**

With the Marathon, we have managed to develop the first mass-production tire that sets a completely new milestone in sustainability. Over the past few years, for example, we have succeeded bit by bit in replacing raw materials in our tires and increasing the proportion of pollutant-free materials to 99%. The knowledge we have gained from the development of this tire will certainly find its way into other Schwalbe products.

We are working at full speed to procure the new, sustainable materials in even larger quantities. Then, step by step, more and more Schwalbe products will be produced using those materials. At the same time, we are conducting intensive research to gradually change our tire formulations.