

ENVIRONMENT - A GREENER OPTION



YOUR PROBLEM, OUR INSPIRATION



WHERE OTHERS SEE PROBLEMS, WE SEE ONLY POTENTIAL

THERE IS THE OPPORTUNITY TO FIND A GREAT IDEA AND A SOLUTION NOBODY HAS THOUGHT OF IN EVERY CUSTOMER CHALLENGE. PROBLEM SOLVING IS WHY WE EXIST, IT IS IN OUR DNA AND IT CONTINUES TO INSPIRE EVERY PRODUCT WE CREATE.

CONTENTS

4	THE PESTLE ANALYSIS
5	THE CO2 FACTS - MANUFACTURING EMISSIONS
6	THE CO2 FACTS - MATERIAL WEIGHT COMPARISON
7	THE CO ₂ FACTS - MAINTENANCE AND REPLACEMENTS
8	FLOOR MAINTENANCE
9	TRANSPORT - 100% RECYCLABLE
10	LIFE CYCLE
11	CO₂ SUMMARY





A-SAFE SAFETY GUARDRAIL SYSTEMS ARE A GREENER OPTION FOR YOUR FACILITY, WITH RESEARCH SHOWING THAT PLASTIC GUARDRAILS CAN REDUCE A COMPANY'S CO₂ EMISSIONS SIGNIFICANTLY IN COMPARISON TO USING STEEL GUARDRAILS, WITH A CARBON FOOTPRINT SIX TIMES SMALLER THAN STEEL OVER FIVE YEARS.

Over five years, it is estimated that a 328ft section of steel Armco guardrail generates 39,610 lbs of harmful carbon emissions compared to just 5,873 lbs with the equivalent A-SAFE Traffic guardrail.

A-SAFE offers far more than safer systems to protect workforces and machinery, reducing maintenance and repair costs. According to independent sources when comparing an A-SAFE traffic guardrail to a typical Armco-type steel traffic guardrail, A-SAFE can offer companies a significantly cleaner bill of health when it comes to their green credentials.

Many companies are re-evaluating their environmental and ethical contribution and looking at all areas where they can reduce their carbon footprint and install greener and more efficient systems across their workplace. A-SAFE has created and developed high-impact polymer guardrails, which not only provide unparalleled safety in a busy warehouse or factory space but also are significantly greener than steel guardrails.



PESTLE ANALYSIS



THERE ARE A NUMBER OF FACTORS THAT CAN ENCOURAGE A BUSINESS TO ADOPT GREENER PRACTICES ACROSS THEIR SITES. WE HAVE PUT TOGETHER OUR PESTLE ANALYSIS OF ALL THE WAYS THAT GREENER PRACTICES CAN POSITIVELY AFFECT YOUR BUSINESS.

POLITICAL

P

Ε

S

L

Government regulations on sustainability and waste reduction, along with incentives for companies that adopt environmentally friendly practices, can support the adoption of polymer guardrails. This creates a favourable political landscape for the transition from steel to A-SAFE polymer.

ECONOMIC

The cost savings associated with reduced maintenance and the longer lifespan of polymer guardrails positively impacts operational efficiency and profitability. A-SAFE polymer guardrails ensure you remain committed to doing business in the right way, supporting your people, the planet and your community.

SOCIOCULTURAL

Environmental issues are at the forefront of people's minds. The rising demand from consumers for sustainable products has the potential to boost your reputation as an environmentally conscious company.

TECHNOLOGICAL

Technological advancements in polymer materials and production processes are continuously enhancing the performance, durability, and sustainability of A-SAFE's polymer guardrails. These advancements, as demonstrated by research conducted by Chen et al. in 2018, are instrumental in providing you with a partner who is at the forefront of innovation.

LEGAL

Adhering to waste management regulations and disposal guidelines is made more attainable with A-SAFE polymer guardrails. These guardrails contribute to reduced waste generation during production and offer an extended service life, mitigating your exposure to potential legal complications.

ENVIRONMENTAL

The integration of polymer guardrails into your facilities boosts your ESG strategy. By incorporating A-SAFE's polymer guardrails, you effectively reduce CO_2 emissions, energy consumption, and waste generation associated with the steel manufacturing process.

This commitment showcases your proactive approach to implementing energy-efficient practices into your facilities and operations, underscoring your dedication to sustainability.

THE CO2 FACTS - MANUFACTURING EMISSIONS



Research conducted by a leading plastic solutions company demonstrated that to produce a ton of Polypropylene* generates over 3,747 lbs of carbon emissions, whilst manufacturing a ton of steel generates just over 3,858 lbs. From the outset a ton of steel produces 110 lbs more CO₂ than plastic does.

Further research has shown that producing a 328ft of A-SAFE Traffic guardrail generates 5,458 lbs of CO_2 emissions compared to that of an equivalent steel Armco guardrail, which creates 7,808 lbs of CO_2 – 33% more than A-SAFE's polymer guardrails.

The information below demonstrates typical examples for 328ft of guardrail in a busy^{**} working environment. Figures can vary due to vehicle types and movement frequency, however we have represented typical applications and environments and to give a fair representation. It is assumed that 328ft of guardrail will have 63" with 63 posts.

The bar chart below shows the amount of CO_2 produced in the initial manufacturing 328ft of iFlex Single guardrail and 328ft of steel guardrail.



CO2 MANUFACTURE

Initial manufacture of guardrail





* http://www.borealisgroup.com/pdf/global-challenges/IN0159_GB_BOR_2008_09_B.pdf

* http://www.liloontheweb.org.uk/handbook/carbonfootprint

**Busy working environment = 100 vehicle movements past the guardrail in a 24-hour period.



THE CO₂ FACTS - MATERIAL WEIGHT COMPARISON



Managing Director, James Smith explained: "It's a case of simple science. If you compare the carbon footprint of producing a ton of steel to a ton of plastic the amount of emissions generated are less for plastic, coupled with the fact that more guardrails can be created from a ton of plastic than from steel, proving it is more efficient at all stages."

The bar chart shows the weight comparison of 328ft of Steel Armco (4,113 lbs) compared to 328ft of A-SAFE Traffic guardrail (2,928 lbs).



James Smith

WEIGHT

Weight of goods for initial manufacture





6



From A-SAFE's vast experience of installing safety guardrails and working alongside our global customer base using both types of guardrails the A-SAFE plastic guardrail system has shown its resilience and longevity in comparison to steel. Due to its flexible nature and the ability to dissipate impact energy and deflect impacts, the replacement of damaged rails and posts is significantly less compared to an Armco steel guardrail.



The below graph shows the CO₂ emissions for the maintenance parts of A-SAFE polymer guardrails and steel guardrails – steel guardrails produce 26 times more CO₂ than A-SAFE polymer guardrails in maintenance per year.

IN A TYPICAL BUSY* ENVIRONMENT, ARMCO STEEL GUARDRAIL HAS TO HAVE 13.8% OF ITS RAILS AND POSTS REPLACED OVER A YEAR, COMPARED TO JUST 0.4% FOR A-SAFE TRAFFIC GUARDRAILS.



CO₂ MAINTENANCE CO₂ emissions for maintenance parts per year

• 🕟 A-SAFE

Steel Armco



575.4 lbs

*Busy working environment = 100 vehicle movements past the guardrail in a 24-hour period.



FLOOR MAINTENANCE



When a vehicle impacts a guardrail the force is generally transmitted straight into the floor. The more rigid a guardrail is, (for example steel) the faster this will occur. When the impact force is transmitted into the ground the floor will have a tendency to break up and get damaged. Generally A-SAFE Guardrails due to their flexible nature have no need for replacement and repair of concrete floors as the force is dissipated throughout the guardrail system.

Concrete is one of the world's worst contributors to CO_2 emissions, approximately the same weight of CO_2 , is emitted, i.e. 1 ton of concrete = 1 ton of CO_2 emissions.

A general 328ft run of guardrail using 63" post centres has 63 posts fixed to 1 foot concrete foundations. When using steel guardrails in a busy warehouse, due to the constant damage the posts are lifted out of the ground damaging the warehouse floor and requiring continual repair.

On average five concrete foundations will need replacing throughout the year on steel Armco compared to 1.5 foundations when using A-SAFE Traffic Guardrail.

1 concrete foundation weighs 142 lbs and therefore replacement of 5 concrete foundations equates to 714 lbs of concrete and 714 lbs of CO₂.





TRANSPORT - 100% RECYCLABLE



100% RECYCLABLE

A-SAFE recycles all its products at the end of its lifespan into other products that the company produces. A guardrail is usually recycled when a clients' needs and applications change or they are looking to upgrade their current system.

James Smith added: "We appreciate that whilst companies are always looking for the most cost-effective solution, the environmentally friendly option is also high in consideration. Through A-SAFE, companies can benefit from both, without compromising at all on health and safety standards. A-SAFE can deliver across all areas whilst also ensuring that a company is working to reduce its carbon footprint."



James Smith

TRANSPORT

Studies have shown that lighter weight materials can help curb CO₂, emissions and the amount of fuel used. Plastic guardrails are lighter than steel ones, and due to A-SAFE's modular nature, it takes up less transportation area and therefore uses less fuel with more guardrail transported at once.

328ft of A-SAFE Pedestrian guardrail creates 0.15 lbs of CO_2 per mile travelled, compared to the 0.21 lbs of CO_2 produced by a steel guardrail for every mile travelled.

CO2 TRANSPORT

Comparative CO2 emissions for 328ft of guardrail per mile



LIFE CYCLE





CUTTING YOUR COMPANY'S CARBON FOOTPRINT IS ONE OF THE MOST IMPORTANT ISSUES OF THE DAY. IT IS EASY TO LOOK PAST THE ENVIRONMENTAL IMPACT OF IMPORTANT SAFETY PRODUCTS THAT PROTECT YOUR STAFF, VISITORS, MERCHANDISE AND BUILDINGS.



It is common knowledge that steel based products such as Armco guardrails have a high carbon footprint. But, as it is something that is perceived as "the only option", people tend to look no further. When the floors become damaged, they are repaired with concrete. Once again, concrete is well known to be high in CO₂ emissions.

A-SAFE guardrails are the alternative with considerably lower CO₂ emissions in manufacture, supply and maintenance. As a result, your company could significantly reduce its carbon footprint by switching to A-SAFE products. With less weight, little to no maintenance or floor repairs, no painting and 100% recyclability, the green credentials couldn't be better.

Reduced maintenance not only means reduced emissions, but also reduced downtime. When steel is impacted, it is likely that the force will got through the posts and bend that too, leading to replacement of the full section. A-SAFE's modular design allows our solutions to flex and deflect impacts. This fewer replacements and if one is needed, only the damaged part needs to be replaced rather than the whole section. This leads to less downtime, increasing your facility's overall efficiency.





A-SAFE OFFER HIGH IMPACT POLYMER BASED GUARDRAILS. THEY ARE USED BY SOME OF THE WORLD'S LEADING COMPANIES, SUCH AS



At the initial manufacture stage, 328ft of steel Armco produces 7,808 lbs of CO₂. This is in comparison to only 5,458 lbs from 328ft of A-SAFE Traffic guardrail. At the end of 5 years, steel Armco guardrail would have created a carbon footprint of 39,612 lbs A-SAFE Traffic guardrails would have a total footprint of just 5875 lbs. Therefore steel Armco has over six times the CO₂ emissions of an equivalent A-SAFE guardrail. This figure also does not account for transport of the guardrails and any painting that is required on the steel.

Looking at a 5 year period comparing 328ft of steel Armco with 328ft of A-SAFE Traffic guardrail, the difference in CO₂ emissions is significant.







A LOCAL COMPANY, GLOBALLY

We work hard to maintain the spirit of a local business while achieving the far-reaching impact of a global enterprise.

Our policy of being "Global and Local" enables us to respond to your needs wherever you are in the world. In every office worldwide, we employ local experts throughout the business. Specialists in their field, equipped with an in-depth knowledge of domestic markets, legislation, safety practices and social customs. We strive to give all workplaces access to world-class products, through local offices and consultants.

GLOBAL OFFICES

A-SAFE Headquarters Global		
A-SAFE Australasia PTY Ltd	Australia & New Zealand	
A-SAFE bvba	Belgium & Luxembourg	
A-SAFE Canada Inc	Canada	
A-SAFE Scandinavia ApS Denmark		
A-SAFE SAS France		
A-SAFE GmbH		
A-SAFE Italia s.r.l.		
A-SAFE K.K.	Japan	

A. de C.V. Mexico	A-SAFE S.A. de C.V.
J. Netherland	A-SAFE B.V.
b. z o.o. Poland	A-SAFE Sp. z o.o.
bluciones S.L. Spair	A-SAFE Soluciones S.L.
B Sweder	A-SAFE AB
NC-LLC UAI	A-SAFE DWC-LLC
CLtd	A-SAFE UK Ltd
c US/	A-SAFE Inc
ternational Ltd Rest of the World	A-SAFE International I to

For contact information for your specific region, please visit www.asafe.com



A-SAFE Inc 400 North Zarfoss Drive, York, PA 17404, USA (443) 776 3472 • sales@asafe.us

