

Playworld Systems

PVC-Free Pledge Kit



 **PLAYWORLD SYSTEMS®**
The world needs play.®

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Playworld Systems has taken the PVC-Free Pledge.



FAQs:

What does green mean?

Being green means we are doing everything we can to protect our natural resources and ecosystems. Protecting our natural resources will help to reduce global warming, carbon footprints and energy consumption. Helping to protect our ecosystem will impact pollution, chemical discharges and have a positive health impact on us and future generations.

Why should I be concerned about PVC?

PVC (Polyvinyl chloride) is a thermoplastic polymer. When PVC is burned uncontrollably it releases dioxin and hydrochloric acid. Dioxin is a persistent bioaccumulative toxin that can migrate through our food chain. PVC can also contain Phthalates & heavy metals which can impact endocrine development if ingested. Due to the porous state of PVC it is also prone to mold and mildew in damp environments.

My playground has PVC, is it safe for children to use?

Yes, PVC in its manufactured stable form on playgrounds is not harmful to users. PVC can become problematic when it is burned due to vandalism, accidental fires, or even landfill fires. PVC can also be problematic if it is manufactured with certain other phthalates and is accidentally ingested (i.e. children's toys). Only 0.5% of all PVC is recycled which makes it harmful to our environment. Evolving science also suggests PVC production can have a lasting health impact on workers with long term exposure.

Why make the switch to PVC-free Eco-Armor™ ?

Eco-Armor is thermoset Polyethylene (PE) which is a tough, durable and environmentally friendly alternative to PVC. It is a proven material found in items such as football face masks, tractor trailer floors, and oil pipe lines to help prevent corrosion. Unlike PVC, Eco-Armor does not have any related health concerns for dioxin, phthalates, and heavy metals. Eco-Armor has no by products other than steam. Eco-Armor is also field repairable to like-new condition which makes it maintenance friendly.

Playworld Systems' products are 99.9999% free of PVCs. This is just one of the many ways we are striving to help the environment and reduce our total carbon footprint.

What is a carbon footprint benchmarking?

Carbon footprint benchmarking is a way of measuring the greenhouse gases produced in making a playground or other product. By determining the carbon footprint we can identify the carbon impact of each playground or piece of equipment and provide customers with the carbon impact for their environmental programming efforts. By understanding the impacts of each manufacturing process we can research alternatives and invest in new processes and materials to reduce the carbon footprint.

Can Eco-Armor™ be recycled?

At the end of the lifecycle the polyethylene (Eco-Armor) can be melted off of the steel frame in a burn off oven. The material would puddle and harden, then be recycled as any other polyethylene can be. The steel frames can also be recycled. Conversely PVC requires controlled incineration because of the release of dioxin, and therefore is unlikely to be recycled. Less than 0.5% of all PVC is recycled.

What is the difference between Transformation and Green-Washing or Offsets?

Transformation is changing business practices to make tangible changes to the environment and reduce our total carbon footprint. We use lean principles to reduce waste. We also reuse and recycle materials. In addition to our green practices inside the office we encourage our employees to practice them at home and in their communities by providing them with information and tips.

Offsetting or Green-washing is a way to indirectly impact the environment. Rather than making the investment for a positive improvement in processes some companies choose to plant trees or purchase carbon offsets rather than finding ways to reduce their carbon footprint and environmental impact.



Playworld Systems has taken the PVC-Free Pledge

Terminology:

BIOACCUMULATION - means that a substance is fat-soluble and therefore builds up in the tissues of living things. Most bioaccumulative substances, including many formed during the PVC life cycle, magnify as they move up the food chain, reaching concentrations in species high on the food chain that are millions of times greater than their levels in the ambient environment.

CARBON FOOTPRINT - A representation of the effect human activities have on the climate in terms of the total amount of greenhouse gases produced.

CARBON OFFSET - A carbon offset is a financial "credit" that can be bought and sold and represents a reduction in greenhouse gas emissions.

DIOXIN - a known human carcinogen, and the most potent synthetic carcinogen ever tested in laboratory animals. Dioxin causes damage to development, reproduction, and the immune and endocrine systems at infinitesimally low doses (in the low parts per trillion). Toxicological studies have not been able to establish a "threshold" dose below which dioxin does not cause biological impacts.

ENDOCRINE-DISRUPTOR - synthetic chemicals that can interfere with hormones and disrupt development, including PCBs, DDT, mercury, and dioxin. Abnormal disruption of hormones, which guide growth, development, intelligence, and reproduction, can result in irreversible harm, which is passed on to future generations.

GLOBAL WARMING - refers to the documented historical warming of the Earth's surface based upon worldwide temperature records that have been maintained by humans since the 1880s. Global warming is the combined result of anthropogenic (human-caused) emissions of greenhouse gases and changes in solar irradiance, while climate change refers to any change in the state of the climate that can be identified by changes in the average and/or the variability of its properties

GREENWASHING - Greenwashing is the practice of making an unsubstantiated or misleading claim about the environmental benefits of a product, service, technology or company practice.

HEAVY METALS - Metallic elements with high atomic weights, e.g., mercury, chromium, cadmium, arsenic, and lead; can damage living things at low concentrations and tend to accumulate in the food chain. These metals form poisonous soluble compounds and have no biological role, i.e. are not essential minerals, or are in the wrong form.

ISO14001 - ISO (International Organization for Standardization) is the world's largest developer and publisher of International Standards. ISO is a network of the national standards institutes of 157 countries, one member per country, with a Central Secretariat in Geneva, Switzerland, that coordinates the system. ISO14001 is the standard which gives the requirements for environmental management systems, confirms its global relevance for organizations wishing to operate in an environmentally sustainable manner.

PERSISTENCE - means that a substance resists natural degradation, builds up over time in the environment, and can be distributed globally on currents of wind and water.

PERSISTENT ORGANIC POLLUTANTS

- According to the United Nations Environment Programme, POPs are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. Global efforts to reduce and eliminate releases of POPs culminated in the Stockholm Convention, a global treaty on POPs, which entered into force in May, 2004.

PHTHALATE - plasticizers, which are known carcinogens in laboratory animals, and are moderately bioaccumulative and moderately persistent in the environment. Phthalates have been known to damage the reproductive system, causing infertility, testicular damage, reduced sperm count, suppressed ovulation, and abnormal development and function of the testes and male reproductive tract in laboratory animals.

POST-CONSUMER CONTENT - is material that has served its intended use and instead of being disposed of, it can be reused in a different product. If a product is labeled "recycled content," the material might have come from excess or damaged items generated during normal manufacturing processes - not collected through a local recycling program.

RECYCLABLE PRODUCTS - Can be collected and remanufactured into new products after they've been used. These products do not necessarily contain recycled material and only benefit the environment if people recycle them after use.

RECYCLED - Content Products are made from material that would otherwise have been discarded. That means these products are made totally or partially from material contained in the products you recycle, like aluminum cans or newspaper. Recycled-Content products also can be items that are rebuilt or manufactured from used products such as toner cartridges or computers.

TOXICITY - the feedstocks, additives, and by-products produced and released during the life cycle of PVC have been shown to cause a range of health hazards, in some cases at extremely low doses, including: cancer, disruption of the endocrine system, reproductive impairment, impaired child development and birth defects, neurotoxicity (damage to the brain or its function), and immune system suppression.



ECO-ARMOR™

Playworld Systems is proud to have eliminated 99.999% of PVCs from our equipment*. And we will remove the remaining .001% as soon as alternative supplies are available.

How can we do this? With Eco-Armor™, our durable, thermoplastic Polyethylene (PE) coating. PE coatings like Eco-Armor average 38% lower carbon footprint than PVC coatings on playground components. Playworld Systems has joined the ranks of other major corporations like Wal-Mart, Sony, Apple, and Toyota to eliminate PVC from the environment.



Eco-Armor's Features & Benefits:

- Environmentally friendly – Eco-Armor has no PVC, phthalates, lead or cadmium, all of which can be potentially harmful components of PVC and impact our environment and wellness.
 - Eco-Armor meets California, Washington and other state and federal requirements for phthalates and heavy metal content.
- Durable – Eco-Armor is more wear-resistant than PVC. PE coating will last as long as PVC.
- Weather-able – Eco-Armor is unaffected by extreme changes in temperature. Extreme cold (to -20°F) cycle testing indicates no cracking or loss of adhesion to the metal substrate.
- Stays clean – Eco-Armor is less porous than PVC, which makes the surface less conducive to growth of mold and accumulation of dirt.
- Superior finish – Eco-Armor's PE coating process improves the finish as compared to PVC, because it eliminates drips and runs.
- Slip-resistant – Eco-Armor is slip-resistant due to its textured finish.

Eco-Armor Technical Specifications:

Functionalized PE, copolymer-based, thermoplastic powder coating; Eco-Armor is designed for maximum mechanical performance, impact-resistance and UV stability with the following performance properties:

<u>Property</u>	<u>Testing Method</u>	<u>Results</u>
Flexibility (conical mandrel)	ASTM D 522	1/8", no cracks (greater than 32%)
Adhesion	ASTM D 4541	800 psi
Impact-resistance	ASTM D 2794	Greater than 320 in-lbs
Gloss	ASTM D 523	12
Taber abrasion	ASTM D 4060	26 (mg loss, CS 17 wheel)
Tensile strength	ASTM D 638	3482 psi
% Elongation	ASTM D 638	13%
Humidity-resistance	ASTM D 2247	No blistering or loss of gloss after 1000 hours
Salt spray	ASTM B 117	No significant change in color or gloss after 2000 hours
QUV	ASTM G 53	No significant change in color or gloss after 2000 hours



* Based on total weight of products shipped.



We believe that kids should play with imagination and abandon. Not PVCs.

We also believe that there are alternatives to PVCs that make our products even better. Therefore, as of October 1st, our play equipment is 99.999%* PVC-free. We are proud to be the first major U.S. manufacturer to remove 99.999%* of PVCs from our products. And we will remove the remaining .001% as soon as alternative supplies are available. This is just one of the many ways we are striving to help the environment and

reducing our total carbon footprint – from materials sourcing to manufacturing to distribution. We're making tangible changes so kids can play in a healthier world.



The world needs play.™

To learn more about all of our environmental initiatives, please visit playworldsystems.com/planet.

*Based on total weight of all products shipped

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Every generation deserves a healthy planet to play on.

Playworld's real change for real impact.

When it comes to protecting our environment, Playworld Systems is accountable for the impact we have on future generations. Our environmental efforts are real and happen within the walls of our company. We do not buy into environmental programs; we improve our own. From our commitment to PVC-free play, to our enhanced waste management and recycling programs, we are changing our behavior to do our part. And in doing so, we are reducing our carbon footprint to give every generation a healthier, happier world to play in.



Playworld Systems is proud to have eliminated 99.999% of PVCs from our products. And we will remove the remaining .001% as soon as alternative supplies are available.

How can we do this? With Eco-Armor™, our 100% recyclable, durable, thermoset Polyethylene (PE) coating. PE coatings like Eco-Armor average a 38% lower carbon footprint than PVC coatings. PE is not only safe and easy to dispose of, it's also phthalate free, lead free, and cadmium free, making it safe for our environment and our health.

Manufacturing Standards

Since 2005, Playworld has operated as a lean manufacturing enterprise, dedicated to reducing waste by continuously improving our operations. In 2007 alone, we recycled 90% of all our waste—over 3 million pounds of steel, plastics, and other materials—and earned our ISO 14001 certification, a testament to our environmental management system and its impact on our processes.

Corporate Culture

Our employees are encouraged to constantly find ways to improve our processes in order to eliminate waste. As a team, we recycled more than 2,200 pounds of plastic bottles in 2007 and regularly get together at our 'free market' to exchange and donate gently used items like clothing and toys.

Products & Packaging

Every Playworld Systems product is designed with a greener planet in mind. Even our packaging materials are 80-100% recycled, recyclable, and biodegradable.

Products	Material	% Recycled	% Recyclable
Border Timbers	Plastic	100%	100%
Posts	Aluminum	100%	100%
Site Amenities Planks	Plastic	90%	100%
Spring Mates®, Post Caps, Steering Wheel	Aluminum	90%	100%
Cushion Play® Surfacing	Rubber Tires	90%	100%
Clamps, Tees, Deck Hangers	Aluminum	90%	100%
Posts, Climbers, Barriers, Components	Steel	Up to 50%	95-98%
Decks, Roofs, Tubes, Panels	Eco-Armor™ Coated Steel	20%	100%

Ask your local Playworld representative how your project could qualify for LEED™ certification points!

Your local Playworld representative can help you meet your green building goals. Visit PlayworldSystems.com to find a representative near you.

See all the ways we're going green at Planet.PlayworldSystems.com.

