



Progress beyond

Solar Impulse Foundation: 1000 efficient solutions

15 Solvay solutions

**SolarImpulse
Foundation**

**#beyond
1000
solutions**

A fruitful historical partnership

Solar impulse & Solvay: Game-changing clean technologies take flight!

Since 2004, Solvay's technologies have contributed to SI1 and SI2 aircraft's energy capture and storage, endurance and safety and above all to its lightweighting.

As a result, in 2016, the first ever Round-The-world Solar Flight, flying zero emissions, landed after it's 40,000km journey.

SOLARIMPULSE
FOUNDATION



OFFICIAL PARTNER



Solar Impulse Foundation for Efficient Solutions



Solar Impulse & Solvay: reinventing progress and make the impossible even more possible!

Since 2016, we pursue this historic partnership as a partner of the **World Alliance for Efficient Solutions** created by the **Solar Impulse Foundation**.

The Foundation aims to identify "**#1000Solutions to change the world**" designed to shed light on solutions that are both profitable and sustainable.



Today, the 1000 solutions milestone has been achieved!



Discover Solvay's 15 Solutions labeled
by the Solar Impulse Foundation!

In line with our Solvay One Planet Goals



●●●● CLIMATE



Fight against
climate crisis

Solef® PVDF
SOLVAir®
Solvaclean®
SolvaLite™
OPTalys®
SOLVAir® Marine
CYCOM®

●●●● RESOURCES



Embed
circular business

AgRHO® S-Boost™
Capterall®
Paramove®
Amni® Soul Eco
Oxystrong® 15
MAX HT®

●●●● BETTER LIFE



Improve
quality of life

Alve-One®
Addibond®

*One solution may have more than one impact



Solef[®] PVDF

Higher energy density and longer cycle life for Li-Ion batteries

Solef[®] PVDF brings many advantages to the performance and the durability of electric vehicles, and more in details to the lithium batteries when used as a binder and in the design of the separator.

Solef[®] PVDF is already well assessed in many specialty applications such as oil and gas, semiconductors, membranes for water filtration, plumbing, architectural coatings and photovoltaics.

-1.67 Mt CO₂ *

* use phase assuming decarbonized electricity



Climate



GBU

Materials



GLOBAL TRENDS

Electrification



SUSTAINABLE
DEVELOPMENT
GOALS



7 AFFORDABLE AND
CLEAN ENERGY



WEB PAGE

SOLVAir®

A highly efficient flue-gas process for exhaust gas treatment

Effective and simple, the SOLVAir® sodium-based solutions is a dry sorbent injection process for air emission control. When in contact with flue gases, it effectively neutralizes the acids to mitigate pollutants. The acid neutralization reaction begins as soon as the sodium-based solution is in contact with the acid gases.

-99%

SO_x, HF
& HCl emissions

88%+

Energy
conversion

SOLVAir®



Climate

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GBU

Soda Ash &
Derivatives



GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE
DEVELOPMENT
GOALS



7 AFFORDABLE AND
CLEAN ENERGY



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



WEB PAGE

SOLVAir® Marine

A highly efficient flue-gas cleaning solution for vessel exhaust gases

With SOLVAir® Marine, we've taken our proven sodium-based solutions for dry sorbent injection processes from land to the seas to facilitate air emissions control. When our sorbent comes in contact with flue gases, it effectively neutralizes acids to mitigate pollutants.

SOLVAir® Marine is the first use of a dry sorbent injection system on a vessel, enabling exhaust gas treatment without the use of any wash water and compliance with International Maritime Organization (IMO) 2020 regulations for SOx emissions reduction.

-99% SOx emissions and particulate matter

SOLVAir®



Climate

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GBU

Soda Ash & Derivatives



GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE DEVELOPMENT GOALS



7 AFFORDABLE AND CLEAN ENERGY



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



WEB PAGE

Solvaclean®

Cleaning the semiconductor tools with lower environmental impact

Semiconductor chip manufacturers use a variety of gases (NF₃, SF₆, C₂F₆) in their processes to pattern silicon wafers. These fluorinated gases have a Global Warming potential from 7000 to 23000 CO₂ equivalents per kg released, while Solvaclean® has zero. After a number of wafers are processed, the process chambers must be cleaned. To meet the need of the semiconductor industry, Solvay developed and patented different fluorine gas mixtures as environmentally friendly gases for CVD cleaning processes.

-100% of CO₂ emissions

* If C₂F₆ replaced by Solvaclean



Climate



GBU

Special Chem



GLOBAL TRENDS

IoT/Digitalization



SUSTAINABLE
DEVELOPMENT
GOALS

6 CLEAN WATER
AND SANITATION



7 AFFORDABLE AND
CLEAN ENERGY



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



WEB PAGE

SolvaLite™

Solvay's range of thermoset composites specifically developed for high volume automotive applications

SolvaLite™ provides a fast-curing, innovative solution which reduces the weight of vehicles by serving as a light-weight alternative to metals, helping to reduce emissions and fuel consumption.

50% lighter than metal



Climate



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Materials



GLOBAL TRENDS

Lightweighting



SUSTAINABLE
DEVELOPMENT
GOALS



WEB PAGE

OPtalyS®

Rare earth-based formulations improving performance of catalytic convertors to reduce automotive emissions.

OPtalyS® materials are tailored to meet the exact requirements of individual customers. It is a high stability inorganic Oxygen-buffer material that enhances the catalytic activity and the durability of the advanced gasoline catalytic converters.

+50% CO₂
emissions reduction*

* with Gasoline Hybrid EV

+90% Exhaust
pollutants reduction



Climate



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Special Chem



GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE
DEVELOPMENT
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WEB PAGE

CYCOM®

CYCOM® can provide solutions to the most technically challenging composite applications

CYCOM® achieves a balance of performance, cost and lightweighting. Offering advantages over metallic solutions and non-CYCOM composite products. In turn this balance facilitates greater use of composite materials across the aerospace sector and consequently a lower fuel burn per aircraft and the reaping of environmental benefits as a result.

Developed to address a range of high performance needs, CYCOM® has the largest number of products qualified on commercial and military aircraft programs, as well as extreme demand industrial applications.

50%

Lighter than metal



Climate



Materials



GLOBAL TRENDS

Lightweighting



SUSTAINABLE
DEVELOPMENT
GOALS



WEB PAGE

AgRHO[®] S-Boost[™]

A biostimulant heralding a cleaner future for farming

AgRHO[®] S-Boost stimulates root development by favoring and optimizing water and nutrient absorption by the seed in the ground. Made out of Guar, a legume cultivated in Northern India, the biostimulant enables plants to grow stronger and faster.

It also reduces the use of fertilizers and water in the fields allowing farmers to grow crops more efficiently and sustainably.

3%

Improvement yield

or

-13%

fertilizer



Resources



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GBU

Novecare



GLOBAL TRENDS

Eco-friendly based solutions



SUSTAINABLE DEVELOPMENT GOALS



WEB PAGE

Capterall®

A non-toxic adsorbent
contributing to the
environmental water ecosystem

Capterall® solution enables the capture of a large variety of pollutants from wastewater, offering a good way for our customers to be compliant with current and future environmental regulations. The process treats polluted water with a non-toxic, mineral-based product.

30+ amount of heavy metals
captured from wastewater



Resources

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GBU

Soda Ash &
Derivatives



GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE
DEVELOPMENT
GOALS

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AND SANITATION



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AND INFRASTRUCTURE



WEB PAGE

Paramove®

A clean and efficient hydrogen peroxide-based treatment helping eliminate sea lice from salmon

Paramove® is a substance found in nature, designed for use as part of a veterinary controlled rotational treatment programme. It is used by fish farmers under prescription of veterinarians and under control of local authorities to remove sea lice and therefore helping the farmers to secure their turnover by harvesting healthy salmon.

30-50% fewer losses due to sea lice
Salmon safe to eat immediately after treatment



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Resources



Peroxides



GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE
DEVELOPMENT
GOALS

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CONSUMPTION
AND PRODUCTION



WEB PAGE

Amni[®] Soul Eco

The first polyamide yarn in the world with enhanced biodegradability offering the ability for biodegradable clothing.

Amni Soul Eco[®] is the first polyamide 6.6 yarn in the world with enhanced biodegradability offering the ability for garments to degrade ten times faster than conventional polyamides making fashion truly eco-sustainable.

100% recyclable and reusable



Resources

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GLOBAL TRENDS

Resource Efficiency



SUSTAINABLE
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WEB PAGE

Oxystrong® 15

A highly effective biocide for reuse in irrigation of disinfected wastewaters.

Agricultural sector uses about 70-80% of the global water resources, almost three times the water quantity used by the industrial sector. The implementation of Solvay Solution Oxystrong® 15 at Milan Water Treatment Station allows to reach high quality standards for water reuse in irrigation.

Oxystrong® 15 disinfects treated municipal waters without generating toxic chlorinated by products while having a lower economical average impact versus mainstream physical alternative like UV lamps irradiation.

-10% reduction in CO₂ emissions*

* compared to sodium hypochlorite



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Resources



Peroxides



GLOBAL TRENDS

Resource Efficiency



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WEB PAGE

MAX HT[®]

Sustainable scale control technology in alumina production

MAX HT[®] eliminates a legacy production challenge in alumina refineries: the formation of sodalite scale in heat exchangers. As a result, alumina refineries avoid downtime previously needed to clean heat exchanger blockages while reducing water (steam) use, thereby improving energy efficiency and decreasing emissions.

-20% need for injection of fresh water



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Resources



GBU

Technology Solutions



GLOBAL TRENDS

Resource efficiency



SUSTAINABLE
DEVELOPMENT
GOALS



WEB PAGE

Alve-One®

A chemical blowing agent improving plastic foams' sustainability profile

Alve-One® is a range of tailor made foaming agents for multiple industries (automotive, construction, packaging, ...) with improved impact for the environment. Entirely inorganic-based, It's a 100% safe, performant and cost effective replacement for ADCA in plastic foam applications.

100% Safe ingredients formulation that pose no issues to human health



Better Life

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Soda Ash & Derivatives



GLOBAL TRENDS

Lightweighting



SUSTAINABLE
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CONSUMPTION
AND PRODUCTION



[WEB PAGE](#)

Addibond®

A water-soluble polymer to strengthen bonding between Aluminum and adhesives in the automotive industry

Addibond® is a unique range of polymers that strengthen the bond of Metal to adhesive, enabling stronger bonding of aluminum parts in cars, key to lightweighting, energy consumption reduction and noise reduction as well as Metal to paint adhesion and corrosion resistance, which increase customer satisfaction and durability of the goods.

Addibond has been designed to reduce toxicity and ecotoxicity, reduce resources consumption, reduce waste and sludge production and procure high efficiency bonding.

100% Efficient solution



Better Life



GBU

Novecare



GLOBAL TRENDS

Lightweighting



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WEB PAGE

Developing game-changing partnerships to make the impossible even more possible!

"Solvay is showing that solutions improving the quality of life on earth and making our planet a better place for humans already exist."



Bertrand Piccard,
Chairman of the Solar
Impulse Foundation



15 Solutions **TODAY!** What about **TOMORROW?**

SolarImpulse
Foundation

#beyond
1000
solutions



SOLARIMPULSE
FOUNDATION



OFFICIAL PARTNER

solvay.com