



**Flexible solutions
for your business**

2022



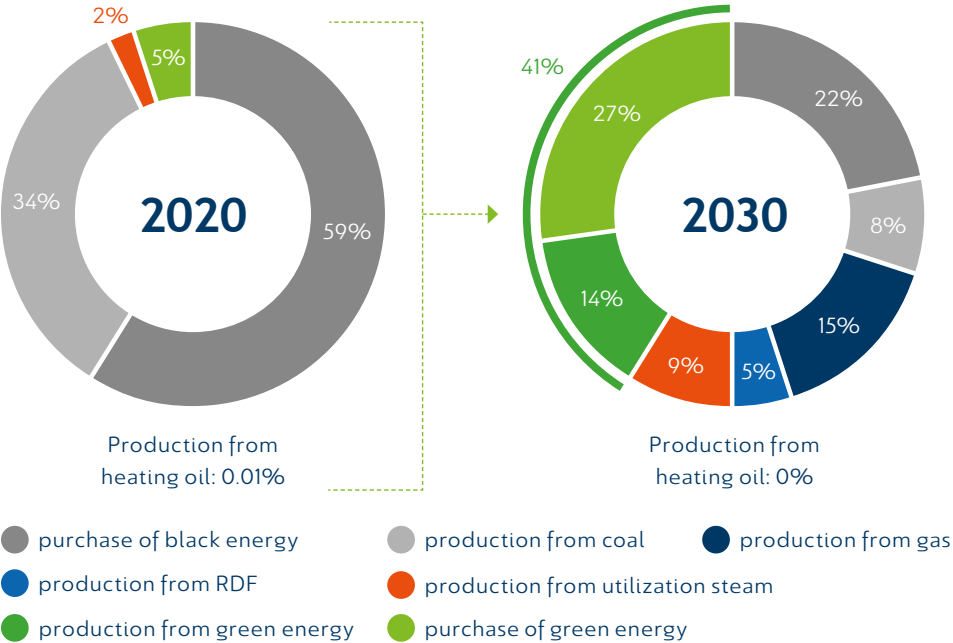
Grupa Azoty S.A.

With the strategy we have developed for 2021-2030, we are responding to the most pressing challenges of today's industry from the perspective of one of the leaders in the European fertilizer and chemical industry. For us, the issue of sustainability and socially responsible business is of strategic importance. We address the challenges posed to the modern industry by **European Green Deal**, being proactively involved in projects covering the areas of green energy, emissions reduction or decarbonization. For smooth functioning, we have launched '**Green Azoty**' project that is based on 3 pillars: **green products, green technologies and green organization**. By 2030, we will continue to actively seek opportunities to implement technological solutions for carbon-free and renewable energy sources, resulting in an **average share of renewable energy sources** in the group energy mix of **at least 40 percent**. Meanwhile, the implementation of the planned decarbonization projects is expected to **reduce the CO₂ emissions** in Grupa Azoty in 2030 by over 800,000 tons compared to 2021. **As Poland's leading hydrogen producer**, we will continue our efforts to develop the hydrogen market and implement the European Union's Hydrogen Strategy.



We understand the gravity of climate and environmental changes, which present a major threat to Europe and the whole world. The chemical industry, which is a source of large amounts of greenhouse gas emissions for reasons inherently related to the technologies employed, must take its share of responsibility for slowing down the

Grupa Azoty energy production structure breakdown by source



Grupa Azoty's goal is to reduce the share of electricity from coal to less than 50% of the total energy consumed in 2030

pace of these changes by striving to achieve carbon neutrality and by investing in green energy and green products. Pro-environmental activities will be carried out within the organization, but we also responsibly select suppliers of raw materials.

Key objectives of the 'Green Azoty' project



Diversification of feedstocks towards green sources



Delivery of the ESG Strategy and its reporting to the market



Implementation of technological solutions involving renewables as **alternative green energy sources**



Striving towards **decarbonisation and reduction of harmful environmental emissions**



R&D projects corresponding to the objectives of the **European Green Deal**



'GreenHydrogen' and Green Ammonia projects Depending on the regulatory direction taken by the EU and EU funding obtained, Grupa Azoty – as Poland's largest producer of hydrogen – intends to keep track of and actively participate in the development of the green hydrogen market. The Grupa Azoty Group will actively seek technological, investment and acquisition solutions in the field of obtaining green ammonia

The 'GREEN AZOTY' strategic corporate project stands primarily for:

Green products

Green technologies

Green organisation

Environmental investments in Grupa Azoty ZAK S.A.

We are leading green projects to be able to produce heat, electricity, hydrogen and green chemicals. Also, we are implementing a very ambitious plan to convert to green energy and green hydrogen. The environmental investments we are making at Grupa Azoty ZAK S.A. fit perfectly into this scheme. Being committed to the idea of a clean Poland and having taken tangible steps to this end, we have become leaders in the green transformation. Our projects are implemented following assumptions such as safety, price stability, with the balance of benefits outweighing costs.

- Our new project named **New Energy Concept** features eco-friendly changes within the production facilities that will provide Segment Oxoplast™ **with the availability of energy utilities** produced with a significantly reduced, and periodically even **zero carbon footprint**, thereby helping to **curb CO₂ emissions**.
- **Hydrogen is our green technology**, and in response we are building **the first alternative fuel laboratory** in this part of Europe. The laboratory will facilitate an end-to-end analysis of hydrogen purity for the automotive industry.
- On October 14, 2021, a sectoral agreement for the development of the hydrogen economy was concluded, which involves 200 entities, including Grupa Azoty.
- On November 2, 2021, a strategy for the development of the hydrogen economy until 2030 with foresight until 2040 was adopted. According to the National Reconstruction Plan, **Poland is expected to develop at least 5 hydrogen valleys**.

Grupa Azoty's hydrogen strategy until 2030 seeks to **decarbonize the hydrogen used**. As part of the planned projects, we start making **investments** in both **renewable energy sources and electrolyzers** allowing the production of green hydrogen. We are also exploring solutions to decarbonize our existing steam reforming plants and to manage the CO₂ resulting from them.

- We are looking for opportunities to implement technical solutions within the scope of renewable energy sources, such as solar **photovoltaics, wind power, biomass energy production and waste heat from production facilities**. The implementation of the above investment and modernization measures will enable us to obtain the status of a renewable energy generator. **We are already implementing a pilot** renewable energy sources project **based on solar photovoltaics, which marks the beginning of our journey toward a substantial reduction in CO₂ emissions**.



Key challenges of the modern world and our responsibility

In **Segment Oxoplast™**, we produce high-performance plasticizers, OXO alcohols and aldehydes. As the market leader in OXO, we are constantly expanding our presence with our products distributed in Europe, North and South America, Asia and the Middle East. Importantly, all Segment Oxoplast™ products are prepared in line with the REACH regulation requirements. In 2021, we launched **new specialty plasticizers, with the entire product line under the Oxofine™ brand**. The portfolio of specialty products features **Oxofine™ DBT plasticizer, Oxofine™ TOTM, Oxofine™ DOA and Oxofine™ Poly2K polymeric plasticizer**.

We are continuously working on the synthesis of new products, including bioplasticizers. Our pride is in combining and developing the key aspects of operating and managing an innovative business- competent and committed employees with modern technologies that give us a winning edge over our competitors. But our number one priority project is **the climate and energy transition**.

Our products and technologies contribute to attaining our customers' environmental goals. By enhancing people's life standards, we favorably impact the climate and the environment. Our R&D projects are carried out in line with the European Green Deal. Innovation and collaboration make an indispensable pairing toward **the sustainable growth of the chemical industry**.



Our responsibility is the future

We are unceasingly working to make Segment Oxoplast™ operations more and more sustainable. Our environmental impact is being reduced, and we are putting sustainable operations into practice. Our expansion enables the manufacturer to reuse and recycle the product, aiming to support a closed-loop economy, minimize raw material consumption, and cut down on waste.

The ongoing activities related to **the project on thermal modernization of production facilities at Segment Oxoplast™** will allow us to generate savings in thermal energy consumption as early as 2022, with **the scale of savings reaching 9,910 GJ/year**, compared to 2019. Subsequent thermal modernization work will enable us to achieve our goal of **maximizing the energy-saving effect and reducing the environmental footprint of our products!**

At **the Laboratory of the Research and Innovation Department**, we are constantly conducting research and development work to synthesize new products including renewable-based ones, which will be a compelling alternative to the petrochemical-derived products. Products based on renewable raw materials are marked by low toxicity and high biodegradability, plus they do not adversely affect the environment and are neither toxic, carcinogenic, nor mutagenic.

Bioproducts are used as **plasticizers for plastics**. **Already in 2022, our first bioplasticizer** will be featured in the Segment Oxoplast™ product range. We are a game-changer for the circular future!



Our goals:



Diversification of the product portfolio through the roll-out of new products extending the value chain of aldehydes and OXO alcohols



Increasing production flexibility by balancing the output of aldehyde derivatives



Expansion of the Oxoplast Segment's presence and market exposure in non-European markets



Ongoing assessment of the competitive position and customer perception in relation to both products and market operations in order to facilitate swift response to any identified changes

Our commitments:



We establish long-term partnerships with our customers and uphold our reputation as a reliable business partner.



Our position of a dependable product supplier is maintained thanks to a top-notch level of service, competent employees, on-time delivery and excellent product quality.

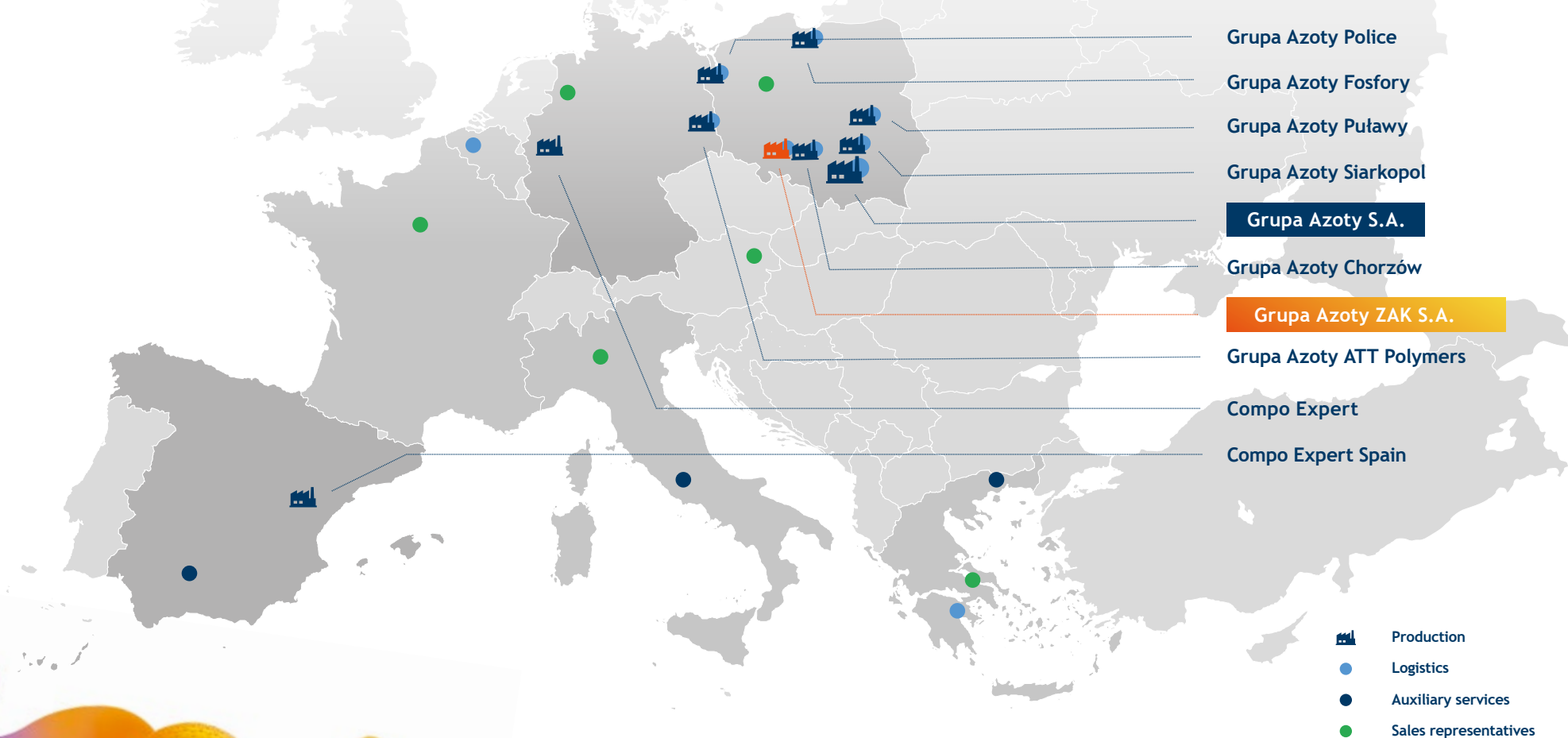


We expand our product portfolio by extending the value chain of aldehydes and OXO alcohols.

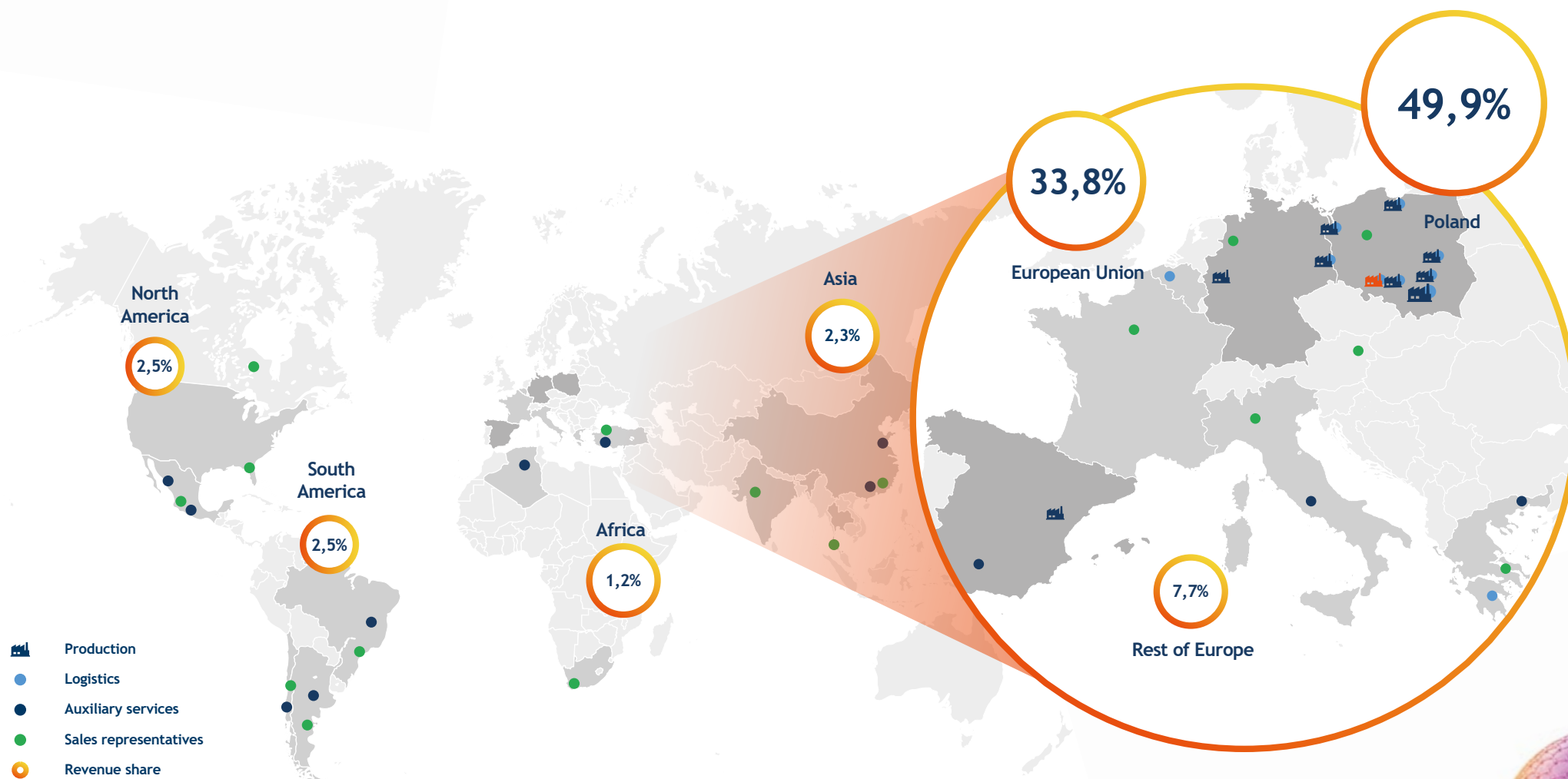


To accommodate regulatory changes and environmental protection, **we provide our customers with access to innovative products** that meet market requirements.

Our locations



Core Business



Business Segments Details



Business Segments				
	Fertilizers	Chemicals	Plastics	Other
Grupa Azoty S.A. (parent company, capital group)	AN, CAN, ASN, AS		PA6, POM, Compounds, Caprolactam	logistics, R&D, electricity and heat, laboratory services, designing and engineering services, mining, harbors
Grupa Azoty ZAK S.A. (capital group)	AN, CAN, UAN, CAN+S, urea	OXO alcohols, Plasticizers, Aldehydes		logistics, R&D, electricity and heat, laboratory services, designing and engineering services, harbors
Grupa Azoty Puławy (capital group)	AN, UAN, urea, NPK, AS	Melamine	Caprolactam	logistics, R&D, electricity and heat, laboratory services, designing and engineering services, harbors
Grupa Azoty Police (capital group)	NPK, NP, NS, urea	Titanium Dioxide		logistics, R&D, electricity and heat, laboratory services, designing and engineering services, mining, harbors
Grupa Azoty ATT Polymers			PA6, Compounds	
Compo Expert	Specialty fertilizers, biostimulants			R&D
Grupa Azoty Koltar				logistics
Grupa Azoty Siarkopol		Sulphur based products		mining
Grupa Azoty Polskie Konsorcjum Chemiczne				designing and engineering services, repairs, maintenance, chemical rescue

Management Board

Grupa Azoty ZAK S.A.



Paweł Stańczyk
Chairman of the
Management Board



Artur Kamiński
Vice President of the
Management Board



Bogdan Tomaszek, PhD
Vice President of the
Management Board



Bolesław Goranczewski
Professor Associate at a university, dr hab.
Member of the Management Board



Jakub Gładysz
Member of the Management Board



Oxoplast™ History



1954
Our experience in OXO products dates back to 1954. This is when we started production of our first PVC plasticizer.



1963
In 1963 we have started to produce diethylhexyl phthalate – DEHP.



1986
We have started-up a modern OXO alcohols plant (2-Ethylhexanol, n-Butanol, Isobutanol) as well as hydrogen and synthesis gas facilities.

The investment had been started in 1982 and employed Davy Process technology.



1996
In co-operation with Davy Process we commenced OXO plant modernization aimed at increasing its capacity.

The process ended in November 1998.



1999
We began production of diisobutyl phthalate – DIBP.



2002
We changed our internal structure and a dedicated Oxoplast Business Unit was created.



2010
Observing trends and dynamic changes in the market we have introduced a high molecular weight phthalate plasticizer – DPHP.





2011

As one of the first in Europe we developed a non-phthalate, PTA based plasticizer and put it to small scale production.



2014

We have introduced a new product brand – Oxoplast Medica™, a plasticizer for medical purposes.



2015

We have started-up a large scale plant for a non-phthalate, PTA based plasticizer (50 kT /year).

The product has been introduced under Oxoviflex™ brand.

We signed a letter of intent on the establishment of the OXO and polymer Application Center.



2013

We decided to build a large scale plant for Oxoviflex™ a non-phthalate plasticizer (50 kT /year).



2016

We have started putting up our Research and Development Centre.



2018

Decision to increase Oxoviflex™ capacity by 15 kT up to 65 kT/year.



2017

We have launched SEP (Specialty Esters Project) pilot plant.



2019

We have started-up a new plant and introduced new specialty plasticizers DBT and DOA.



2020

Return to the historical
name Oxoplast™.



2021

We introduced into our portfolio
high quality specialty plasticizers
Oxofine™ TOTM and Oxofine™
Poly2K. Oxofine™ has become the
umbrella brand for all specialty
plasticizers, which also include
Oxofine™ DBT and Oxofine™ DOA.





Segment Oxoplast™

flexible opportunities

Grupa Azoty ZAK S.A. is a part of Grupa Azoty. Oxoplast™ is a Business Unit of Grupa Azoty ZAK S.A. focused on OXO alcohols, plasticizers and aldehydes.



We respond to customers' needs and challenges of a changing world with our **specialty products**.



Innovation has permanently entered our DNA. We believe that the future lies in better understanding of our partners' needs and working together to create the best solutions.



We develop our products according to sustainable development principles and **environmental care**. Our goal is to provide solutions that enable the production of products that are environment-friendly and safe for human health.



We are proud of Oxoplast™ **heritage**. We have been producing plasticizers continuously since 1954, and OXO alcohols since 1986. ZAK Quality is our trademark - quality recognized all over the world!



Oxoplast™ over the years

Plasticizers

- 1954** start of production of the first PVC plasticizers
- 1963** Oxoplast™ O (DEHP)
- 1999** Oxoplast™ IB (DIBP)
- 2010** Oxoplast™ PH (DPHP)
- 2014** Oxoplast Medica™
- 2015** Oxoviflex™ (DEHT) - start up of 50 kT/year plant
- 2018** phase out of phthalate plasticizers and decision to increase of Oxoviflex™ production capacity by an additional 15 kT / year
- 2019** Start-up of 10 kT/year specialty plasticizers plant
- 2021** Oxofine™ TOTM - high quality specialty plasticizers and first polymeric plasticizer Oxofine™ Poly2K

OXO Alcohols

- 1986** Start-up of OXO alcohols plant (2-Ethylhexanol, n-Butanol, Isobutanol)
- 1998** OXO plant revamp aimed at increasing its capacity up to 225 kT/year





Capacities

Plasticizers

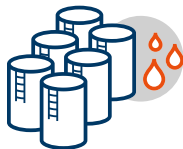
Our experience in the production of plasticizers dates back to **1954**

- We are the largest European producer of **DOTP**
- We look boldly into the future - **we have increased capacity of Oxoviflex™ and launched specialty esters plant**
- We introduced into our portfolio high quality specialty plasticizers **Oxofine™ DBT**, **Oxofine™ TOTM**, **Oxofine™ DOA** and polymeric plasticizer **Oxofine™ Poly2K**

no. 1 in EU's DOTP capacity

General Purpose
Plasticizers

Oxoviflex™



65 kT/year

Specialty
Plasticizers

Oxofine™ DBT **Oxofine™ TOTM**
Oxofine™ Poly2K **Oxofine™ DOA**



10 kT/year



2,4 million tons of
plasticizers produced
since 1954



OXO alcohols

We have been producing OXO alcohols since **1986**

- In 1998 our OXO plant was modernized, **now it is one of the most modern in Europe.**
- On our plant, apart from OXO alcohols we supply their precursors i.e. n-Butyraldehyde and Isobutyraldehyde.
- Geographical barriers do not exist for us, we serve our clients globally

n-Butanol
Isobutanol
Octyl alcohol F



55 kT/year

2-Ethylhexanol



170 kT/year

no. 2 in EU's 2-EH capacity

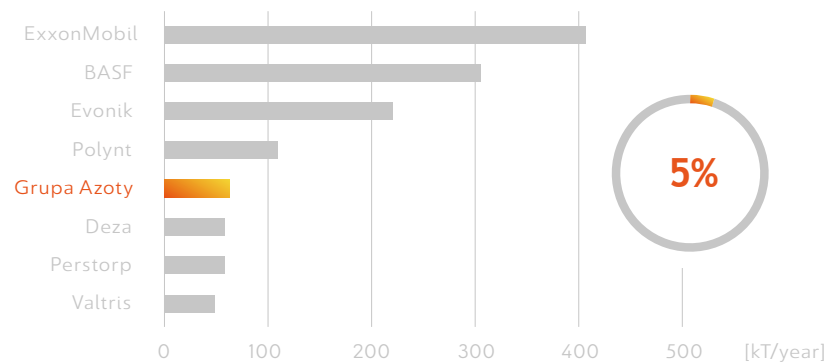


5 million tons
of OXO alcohols
produced since 1986



Market share in European Union

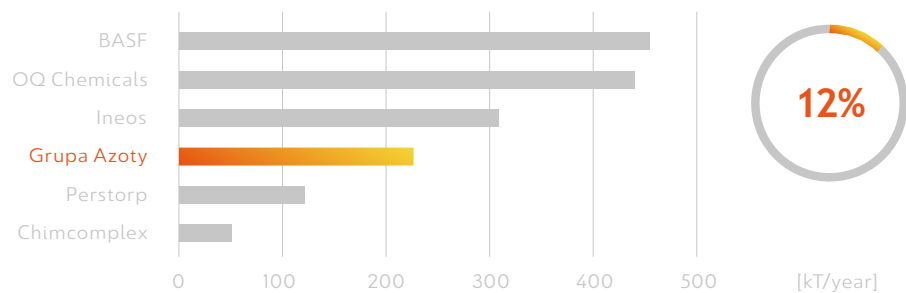
Plasticizers



with reference to DEHT, DINCH, DINP, DPHP

no. 1 in EU's
DOTP capacity

OXO alcohols

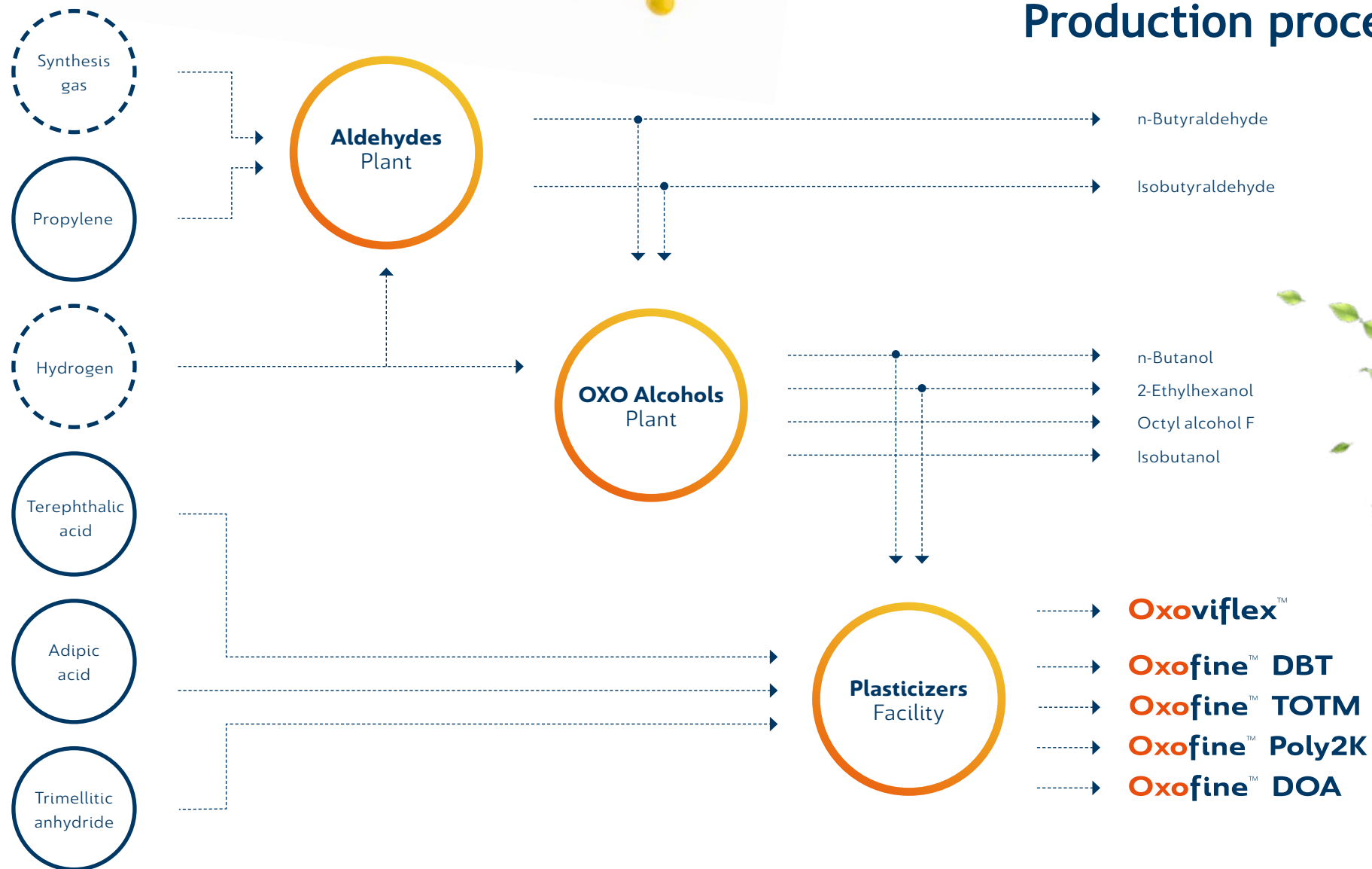


with reference to 2-EH and butanols

no. 2 in EU's
2-EH capacity



Production proces



Logistics options

Efficient logistics

Geographical barriers do not exist for us, we operate globally. We provide our clients with comprehensive service and in-time deliveries. We adapt to the most demanding needs and use innovative logistics solutions.

IN-TIME deliveries in:

- IBC's



- drums



- road tankers



- ISO tanks



- flexitanks



- rail tankers



Proven logistics:

- land
- maritime
- intermodal



Oxoplast™ Products



		Trade name	Chemical name	CN	CAS	PKWiU	REACH Status
General Purpose Plasticizers	Oxoviflex™	Oxoviflex™	bis(2-ethylhexyl) terephthalate	2917.39.95	6422-86-2	20.14.34.0	DEHT registered 06/09/2012
	Oxofine™ DBT	Oxofine™ DBT	dibutyl terephthalate	2917.39.95	1962-75-0	20.14.34.0	DBT, DBTP – registered 26/04/2019
Specialty Plasticizers	Oxofine™ TOTM	Oxovifne™ TOTM	tris(2-ethylhexyl) benzene-1,2,4-tricarboxylate	2917.39.95	3319-31-1	20.14.34.0	TOTM registered 2/12/2020
	Oxofine™ Poly2K	Oxofine™ Poly2K	n/a	3812.20.90	—	20.59.56.0	Polymeric substance - exempt from REACH registration
	Oxofine™ DOA	Oxofine™ DOA	bis(2-ethylhexyl) adipate	2917.12.00.90	103-23-1	20.14.33.0	DOA, DEHA zarejestrowany 11/12/2018
OXO Alcohols	2-Ethylhexanol	2-Ethylhexanol, 2-EH	2-Ethylhexan-1-ol	2905.16.85	104-76-7	20.14.22.9	2-Ethylhexanol registered 28/09/2010
	n-Butanol	n-Butanol	Butan-1-ol, n-Butanol	2905.13.00	71-36-3	20.14.22.9	N-Butanol registered 02/11/2010
	Isobutanol	Isobutanol	2-Metylopropan-1-ol, Isobutanol	2905.14.90	78-83-1	20.14.22.9	Isobutanol registered 04/11/2010
	Octyl alcohol F	Octyl alcohol F	1-Hexanol, 2-ethyl-, manuf. of, by-products from, distn. residues	3824.99.92	68609-68-7	20.59.59.9	Octyl alcohol F registered 12/01/2012
Aldehydes	n-Butyraldehyde	n-Butyraldehyde	n-Butyraldehyde; Butanal	2912.19.00	123-72-8	20.14.61.0	N-Butyraldehyde registered 07/10/2010
	Isobutyraldehyde	Isobutyraldehyde	2-methylpropanal	2912.19.00	78-84-2	20.14.61.0	Isobutyraldehyde registered 11/08/2010

Plasticizers

Oxoplast™

Identified use

Cables, films, PVC flooring, paints, hoses and profiles, wallpapers, shoe soles, upholstery, food contact materials, toys and other (seals, roofing, ink).

General Purpose Plasticizer



>99,5%
DOTP
Superior Purity



Phthalate Free



Food Contact Certified



Pharmacopoeia Approved



Quality Monomeric

Specialty Plasticizers



Phthalate Free



Quality Monomeric



Phthalate Free



Quality Monomeric



Phthalate Free



Quality Polymeric



>99,5%
DOA
Superior Purity



Phthalate Free



Food Contact Certified















Quality Monomeric



Plasticizers applications



												
	medical devices	wires & cables	wallpapers	garden hoses	fabrics	paints and varnishes	toys	footwear	automotive	cosmetics	pvc flooring	food contact materials
Oxoviflex™	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Oxofine™ DBT				✓		✓	✓				✓	
Oxofine™ TOTM	✓	✓							✓			
Oxofine™ Poly2K	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Oxofine™ DOA	✓	✓	✓	✓	✓	✓		✓		✓		✓

General Purpose Plasticizers

Oxoviflex™

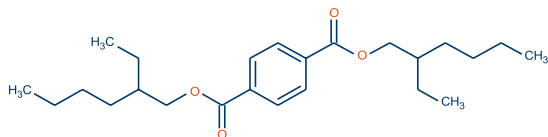
Trade name: Oxoviflex™

Chemical name: Bis(2-ethylhexyl) terephthalate

CAS: 6422-86-2

REACH Status: DEHT

registered 06/09/2012



Make it flex!

Oxoviflex™ is high-quality bis(2-ethylhexyl) terephthalate used in PVC and polymers processing as well as in paint and varnish industry. It features particularly good physical and chemical properties and serves as general purpose plasticizer for vast array of flexible PVC products. Oxoviflex™ is environmentally safe and is not subjected to any legal restrictions. Oxoviflex™ makes things flexible, functional and friendly in everyday use. Due to superior purity Oxoviflex™ can be successfully applied to sensitive applications as toys and food contact materials.

Oxoviflex™ is REACH registered according to EC regulation No. 1907/2006.

**>99,5%
DOTP**
Superior
Purity

**Phthalate
Free**

**Food Contact
Certified**

**Pharmacopoeia
Approved**

**Quality
Monomeric**



No. 1
in DOTP production
in the European Union

- Dedicated production plant
- No phthalate impurities
- Stable and repeatable product quality





Specialty Plasticizer

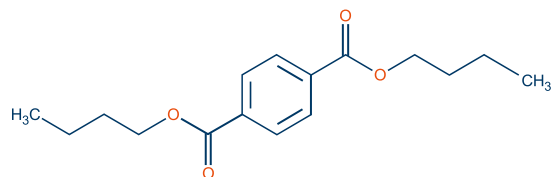
Oxofine™ DBT

Trade name: Oxofine™ DBT

Chemical name: dibutyl terephthalate

CAS: 1962-75-0

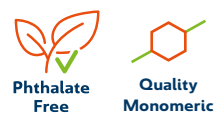
REACH Status: DBT, DBTP
registered 26/04/2019



One step ahead!

Oxofine™ DBT is high quality dibutyl terephthalate, which features fast fusing properties, low migration and provides higher flexibility to finished products. These properties allow it to be applied in PVC flooring as a functional plasticizer with Oxoviflex™, adhesives and sealants and in the production of various inks. Oxofine™ DBT is an oily liquid, colourless or light straw, with no mechanical impurities.

Oxofine™ DBT is REACH registered according to EC regulation No. 1907/2006.



Specialty Plasticizer

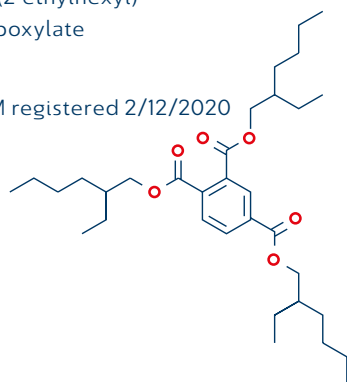
Oxofine™ TOTM

Trade name: Oxofine™ TOTM

Chemical name: Tris(2-ethylhexyl)
benzene-1,2,4-tricarboxylate

CAS: 3319-31-1

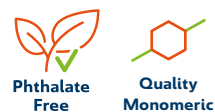
REACH Status: TOTM registered 2/12/2020



Oxofine™ TOTM is produced using our high quality 2-EH and trimellitic anhydride. It is manufactured according to a proven technology which guarantees its highest quality and production stability.

Oxofine™ TOTM can be used as primary or functional plasticizer in combination with other plasticizers. It has a positive effect on finished product properties and its manufacturing process.

Oxofine™ TOTM has been registered in accordance with Regulation (EC) No. 1907/2006 (REACH).



Specialty Plasticizer

Oxofine™ Poly2K

Trade name: Oxofine™ Poly2K

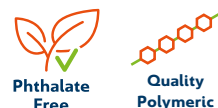
Chemical name: n/a

CAS: —

REACH Status: Polymeric substance -
exempt from REACH registration

Oxofine™ Poly2K is the first polymeric plasticizer in Segment Oxoplast™ portfolio. **Oxofine™ Poly2K** is a result of intensive research and development works in our Company. We produce it with the use of adipic acid. It is manufactured according to a proven technology which guarantees its highest quality and production stability.

As the polymer substance, **Oxofine™ Poly2K** is excluded from mandatory REACH registration under Regulation (EC) No. 1907/2006.



Specialty Plasticizer

Oxofine™ DOA

Trade name: Oxofine™ DOA

Chemical name: bis(2-ethylhexyl) adipate

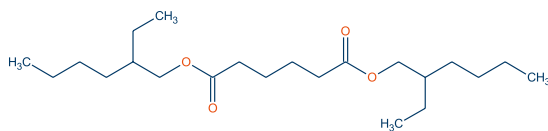
CAS: 103-23-1

REACH Status: DOA, DEHA
registered 11/12/2018

True professional!

Oxofine™ DOA is high-quality bis(2-ethylhexyl)adipate. Due to its particularly good plasticizing properties, especially in low-temperature applications and a safe toxicological profile, it is recommended for food contact materials (in particular in the production of PVC food films). In addition, Oxofine™ DOA is applied in the production of garden hoses, cables and coated fabrics. Depending on the application, it can be used as a main or functional plasticizer with Oxoviflex™. In addition to the processing of PVC, Oxofine™ DOA is recommended as a solvent in the cosmetics industry, plasticization of nitrocellulose, synthetic rubber and production of varnishes. Oxofine™ DOA is an oily liquid, colourless, with no mechanical impurities.

Oxofine™ DOA is REACH registered according to EC regulation No. 1907/2006.



OXO Alcohols
and Aldehydes
Oxoplast™





OXO Alcohols

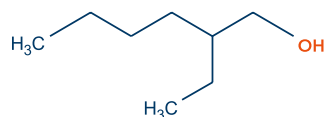
2-Etyloheksanol

Trade name: 2-Ethylhexanol

Chemical name: 2-Ethylhexan-1-ol

CAS: 104-76-7

REACH Status: 2-Ethylhexanol
registered 28/09/2010



n-Butanol

Trade name: n-Butanol

Chemical name: Butan-1-ol, n-Butanol

CAS: 71-36-3

REACH Status: n-Butanol registered 02/11/2010



Identifieds use



Paints and
varnishes



Pharmaceutics
& Cosmetics



Automotive



Chemical
Synthesis



Other

It is produced according to strict process regime derived from our experience. We put an extra emphasis on its quality which is transferred to further processed products: plasticizers, acrylates, fuel additives (2-EHN) and other chemical products.

2-EH is REACH registered according to EC regulation No. 1907/2006.

Identifieds use



Paints and
varnishes



Pharmaceutics
& Cosmetics



Chemical
Synthesis



Other

It is manufactured according to highest quality standards which guarantees our customers that all requirements concerning its further processing to acrylates, acetates and solvents and other chemical substances are met.

n-Butanol is REACH registered according to EC regulation No. 1907/2006.



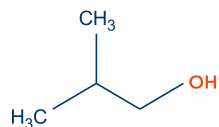
Isobutanol

Trade name: Isobutanol

Chemical name: 2-Metylopropan-1-ol, isobutanol

CAS: 78-83-1

REACH Status: Isobutanol
registered 04/11/2010



Identifieds use



Automotive



Chemical
Synthesis

Our product is mailny used as solvent in many appreciated brands of paints, varnishes and resins.

Isobutanol is REACH registered according to EC regulation No. 1907/2006.

Octyl alcohol F

Trade name: Octyl alcohol F

Chemical name: 1-Hexanol, 2-ethyl-, manuf.
of, by-products from, distn. residues

CAS: 68609-68-7

REACH Status: Octyl alcohol F registered 12/01/2012

Identifieds use



Other

Octyl alcohol F is a liquid with various colourations: from yellow through yellow-brown to greenish and with the specific odour.

Octyl alcohol F is REACH registered according to EC regulation No. 1907/2006.



Aldehydes

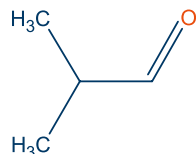
Isobutyraldehyde

Trade name: Isobutyraldehyde

Chemical name: Isobutanal; 2-methylpropanal

CAS: 78-84-2

REACH Status: Isobutyraldehyde registered 11/08/2010



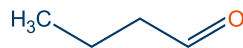
n-Butyraldehyde

Trade name: n-Butyraldehyde

Chemical name: n-Butyraldehyde; Butanal

CAS: 123-72-8

REACH Status: n-Butyraldehyde registered 07/10/2010



Identifieds use



Isobutyraldehyde is the second of the intermediates in the synthesis of OXO alcohols. We process it to isobutanol. With its specific proprieties isobutrylaldehyde is also used by our customers for production of resins, amines and specialty esters.

Isobutyraldehyde is REACH registered according to EC regulation No. 1907/2006.

Identifieds use



n-Butyraldehyde is the basic intermediate in the production of our OXO alcohols (2-EH and n-butanol). Our customers process it and produce solvents, esters, acids, resins, etc.

n-Butyraldehyde is REACH registered according to EC regulation No. 1907/2006.





Business support

The Laboratory of the Research and Innovation Department

The main aim of our **experimental installation, known as quarter-technical installation, are works on the synthesis of the new plasticizers obtained using the esterification and transesterification methods.** We are continuously working to improve our technology of plasticizer processing and researching new technologies. Due to the possibility of changing the process parameters, we are able to match the conditions for the synthesis, to obtain a product with specific properties adjusted to our customers' requirements. Our plasticizers are subsequently tested in **the Laboratory of the Research and Innovation Department**, which significantly enhances our company's research and development potential.

In the laboratory, we can recreate the production process on a laboratory scale, create material for research and conduct advanced tests. Having extensive equipment facilities, **our customers receive products tailored to their needs.**

The Laboratory of the Research and Innovation Department consists of **three divisions: plastics processing, chemical syntheses and chemical analysis. In the plastics processing division mainly product application research is conducted.** The backup facilities of the processing division are equipped with a number of devices and apparatus used in processing and testing the physicochemical properties of plastics. The apparatus used in processing includes: a set of mixers, a

granulation line with a twin-screw extruder and a granulator, a planetary extruder, a laboratory injection molding machine and a hydraulic press. **Devices for testing the physicochemical properties of plastics include: a device for monitoring the plasticizing time, testing machine and apparatus for checking thermal stability.**

Plastics processing begins with the preparation of dry-blends. The data obtained at this stage facilitate comparison of the processing conditions of PVC blends using different plasticizers. The next step is to produce granules from previously prepared mixtures. Due to the extrusion parameters, we can determine the optimal processing parameters. Further steps involve the preparation of plastic samples for testing the physicochemical properties of the material (pressing and injection). Prepared in this way, **samples are then tested for migration, plasticization time, thermal stability and are subjected to strength tests (tensile strength, elongation at break).**

The Laboratory of the Research and Innovation Department also comprises a **synthesis part.** In the area of chemical syntheses, we are working on polyesters, new catalysts, as well as new esters and bioesters that can act as plasticizers (bioplasticizers).

Apart from the basic laboratory glassware, the synthesis part is equipped with a fully automated **reactor enabling syntheses up to 10 liters.** With full automation, it is possible to control parameters during the reaction, such as: temperature, pressure or speed of the stirrer rotation, as well as reagent dosing control.

Alongside the synthesis section is **the area of chemical analytics where qualitative and quantitative analysis of the products is carried out.** The analytical laboratory is equipped with liquid, gas and gel chromatograph, as well as basic analytical equipment such as a densimeter and a viscometer



Membership



Grupa Azoty ZAK S.A. is a member of **European Plasticisers**, a sector group of the European Chemical Industry Council (**Cefic**), which is a trade association representing chemical companies accounting for the production of approx. 85% of plasticizers manufactured in Europe.

Our common goal is to provide evidence-based information on plasticizers and promote their use and benefits they bring to daily life.

Through European Plasticisers, we are involved in **VinylPlus**, the vinyl industry's major initiative promoting the sustainability of PVC throughout the value chain..



Contact

Grupa Azoty ZAK S.A.

ul. Mostowa 30 A

47-220 Kędzierzyn-Koźle

phone: +48 77 481 20 00

e-mail: oxoplast@grupaaazoty.com



Oxoplast Business Unit Commercial Director

Anna Gruszczynska

phone: +48 77 481 25 53

e-mail: anna.gruszczynska@grupaaazoty.com



Sales Manager Western Europe and NCSA

Waldemar Pawelczyk

phone: +48 77 481 39 85

e-mail: waldemar.pawelczyk@grupaaazoty.com



Sales Representative Germany, Austria, Switzerland

Jacek Ogonowski

phone: +43 660 22 69 111

e-mail: jacek.ogonowski@grupaaazoty.com



Sales Representative North America

Paweł (Paul) Bozek

phone: +1 905 980 0414

e-mail: pawel.bozek@grupaaazoty.com



Sales Manager Poland and East-Central Europe

Jolanta Kamys

phone: +48 77 481 35 18

e-mail: jolanta.kamys@grupaaazoty.com



Sales Manager Southern Europe, Asia, Africa

Katarzyna Łukasik

phone: +48 77 481 22 50

e-mail: katarzyna.lukasik@grupaaazoty.com



Purchasing Manager Department of Strategic Raw Materials and Trading

Anna Frankiewicz

phone: +48 77 481 21 90

e-mail: anna.frankiewicz@grupaaazoty.com



Products Processing Coordinator

Boris Fleites-Jończyk

e-mail: boris.fleites-jonczyk@grupaaazoty.com





Oxoviflex™

oxoplast.com/en/plasticizers/oxoviflex-dotp-deht/



Oxofine™ DBT

oxoplast.com/en/plasticizers/oxofine-dbt



Oxofine™ TOTM

oxoplast.com/en/plasticizers/oxofine-TOTM



Oxofine™ Poly2K

oxoplast.com/en/plasticizers/oxofine-Poly2K



Oxofine™ DOA

oxoplast.com/en/plasticizers/oxofine-doa



oxoplast.com/do-pobrania/

OXO Alcohols



2-Ethylhexanol

oxoplast.com/en/oxo-alcohols/2-ethylhexanol/



n-Butanol

oxoplast.com/en/oxo-alcohols/n-butanol/



Isobutanol

oxoplast.com/en/oxo-alcohols/isobutanol/



Octyl alcohol F

oxoplast.com/en/oxo-alcoholst/oktanol-f/

Aldehydes



n-Butyraldehyd

oxoplast.com/en/aldehydes/n-butyraldehyde/



Isobutyraldehyd

oxoplast.com/en/aldehydes/isobutyraldehyde/





Grupa Azoty ZAK S.A.

ul. Mostowa 30A
47-220 Kędzierzyn-Koźle
Poland
phone: +48 77 481 20 00
oxoplast@grupaazoty.com

www.oxoplast.com



**Segment
Oxoplast™**
flexible opportunities

09/2022