From Romania to your daily life

Chimcomplex Products

- PETOL® POLYETHER POLYOLS
- OXO - ALCOHOLS
- CHLOR - ALKALI
- ALKYLAMINES
- INORGANIC CHLORIDES

We add **value to natural resources** for **a better life**

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www.chimcomplex.com

CHIMCOMPLEX
1954-2024

We are **the main producer and supplier** of **vital chemicals in Romania with 70 years of experience.**

What we do?

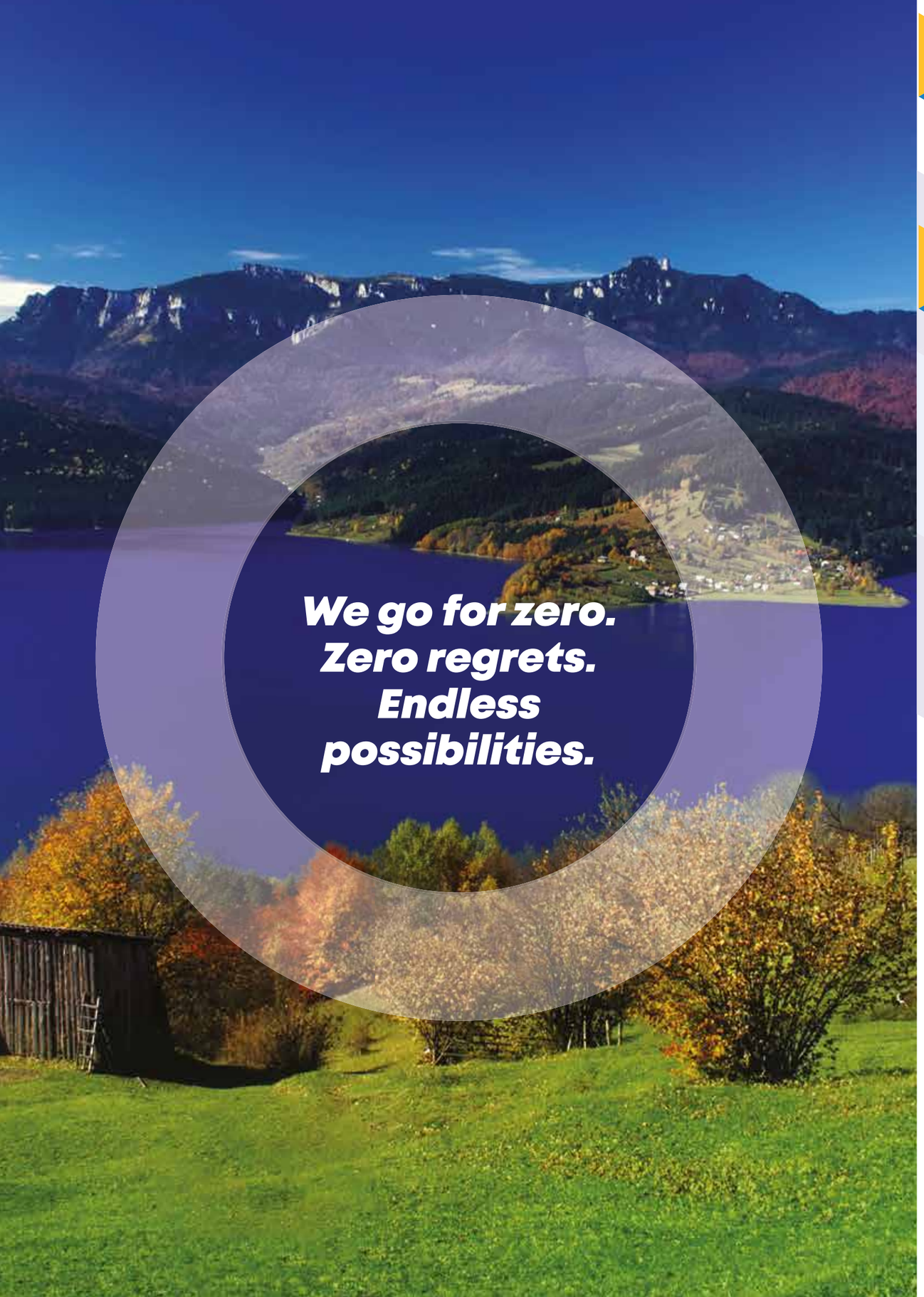
We produce and market inorganic and organic chemicals.
We specialize in polyols, oxo-alcohols and chlor-alkali.

Chimcomplex currently manages the largest chemical plant, with two industrial platforms in Onești, Bacău district and Râmnicu Vâlcea, Vâlcea district.

Chimcomplex is a national company, with a majority of Romanian shareholders and a clear objective to attract many other Romanian investors.

Chimcomplex's strategic role in Romania:

- provide basic chemicals (caustic soda and hydrochloric acid) for the energy industry in ion exchanger regeneration processes;
- provide chlorine, sodium hypochlorite, and lime chloride necessary for the production of drinking water, for more than 99% of the drinking water stations in Romania, Bulgaria, and Moldova;
- provide sodium hypochlorite-based biocides for the disinfection of hospitals and public spaces;
- provide basic chemicals (ferric chloride and ferrous coagulants, pH correction agents) for the treatment of wastewater;
- provide the necessary products for various industrial applications (ferrous and non-ferrous metallurgy, detergents and cosmetics, food chemistry, industrial gases – hydrogen, automotive industry, furniture industry, oil and gas industry, fertilizers, plasticizers, solvents, etc.).



We are a company with a high level of technical know-how and specialized workforce, committed to long-term projects. We guarantee results for our customers by capitalizing our long experience, product quality and high capacity for innovation.

Here are some key points:

In recent years, Chimcomplex has undertaken various investment projects aimed at modernizing its production facilities, increasing efficiency, and expanding its product range. These investments have helped the company remain competitive in the global chemical market.

"We continuously invest in new technologies, modernization of industrial processes and preventive maintenance, which guarantee quality and reliability, contributing to economic and social development. Our journey is therefore reflected in our mission to make chemistry happen, to create sustainable value for all stakeholders, whether they are shareholders, customers, suppliers, employees, partners, or society. In this regard, we maintain our activity supported by pillars such as quality, respect for the environment, and interaction with the community, in addition to strict operating standards in safety and appreciation of our employee, always having sustainability as a guide for business performance."

Ștefan Vuza, Chairman.

Chimcomplex has constantly **improved its technologies and equipment** to increase quality, productivity, and energy efficiency. For example, there have been several improvements to brine electrolysis, today using Zero Gap cell technology to reduce energy consumption and carbon footprint. By increasing efficiency and using renewable resources, we are committed to making even more improvements to our processes.

A NEW SPECIAL POLYOLS PLANT

In 2022 we completed our new polyol plant, with an investment of 40 million euros, which increased our production capacity to over 187,000 tons per year.

Our factory is one of the most modern in Europe and around the world. Its concept is integral – that is, not only the production of polyols takes place here, but also the design, which we do together with customers, adapting the formula according to their needs, product engineering, technical support for customers, and even collection for recycling.

Chimcomplex is a **Responsible Care** certified company, a voluntary commitment of the global chemical industry to which we have adhered with confidence and the desire for continuous improvement and to achieve excellence in environmental performance, health, safety, and security at work.

Responsible Care®
OUR COMMITMENT TO SUSTAINABILITY

Chimcomplex is a company listed on the Bucharest stock exchange, on the regulated market, standard category, CRC symbol, starting with 17.01.2022.

Awards validate our commitment:

- "Energy Efficiency Program of the Year" at ENERGY CEO FORUM & AWARDS by The Diplomat 2024
- "Grand Trophy for 2023 Results" by National Association of Romanian Exporters and Importers Gala 2024.
- "The Best-Performing Company in Romania 2023" by the Romanian Chamber of Commerce and Industry Gala.
- "Best Performing Player in the Chemical Industry" at the 2022 Capital Elite Companies Gala.
- "Excellence Award for Building the Strongest Chemical Industrial Group in Romania" at the Bursa Gala 2021.

At Chimcomplex, understanding our customers' needs is ingrained in our DNA. We pride ourselves on not just meeting, but exceeding your expectations, navigating through your challenges with finesse while keeping our offerings competitive.

Our powerhouse team boasts unparalleled expertise cultivated over years of dedication, supported by Chimcomplex experts in Academia.
Our network of sales representatives stands ready to lend a helping hand and reply to any inquiries you may have.
At Chimcomplex, assistance is just a phone call away.

**Rest assured,
with Chimcomplex,
you're in capable hands.**

over **200** **RESEARCHERS INVOLVED**
in projects over time

and **20** **INVOLVED IN PRESENT**

At Rm. Vâlcea is the only **Advanced Polyols Research and Development Center in Romania.**

The Advanced Polyols Research and Development Center existing on the platform has been operating for over 40 years and cooperates with our customers from all over the world and with the laboratories of Romanian and international universities and research institutions.
We aim to always continue to innovate by creating products that our customers need.

Chimcomplex products are exported to

60 **COUNTRIES** from **3** **CONTINENTS**
Europe, Asia and Africa.

71% total **EXPORTS** of production.

WE ARE THE LARGEST EXPORTER WITH ROMANIAN PRIVATE CAPITAL

Our products are sold both nationally and internationally and are used in Germany, France, Japan and 60 other countries, up to Africa.
The products manufactured by Chimcomplex are used daily to produce thousands of other safer and more sustainable products: from polyurethane shoe soles and mattress foams to wind turbine blades and hybrid car batteries. Our products help us get home safely and easily. We contribute to increasing the quality of life for a more dynamic and comfortable world.

43 **YEARS EXPERIENCE**
in the polyols field.

PETOL® products are a family of polyether polyols used for the synthesis of polyurethane products. Developed with proprietary technologies, in a wide range of molecular weights and functionalities, the Petol® family of polyols enables the synthesis of cellular and non-cellular polyurethanes with properties ranging from elastomeric to highly cross-linked rigid plastics.

PETOL® polyols can be used in a variety of polyurethane products including adhesives, coatings, sealants, elastomers, flexible block and molded polyurethane foams, and rigid polyurethane foams.

18 **INDUSTRIES**
where Chimcomplex products are used.

WE HELP DOWNSTREAM INDUSTRIES AND VALUE CHAINS ACHIEVE THEIR GOALS.

AUTO
Polyols for cold-cast flexible polyurethane foams (seat cushions) and semi-flexible (dashboard; steering wheel; headrests; sound-absorbing carpets).

FURNITURE
Polyols for standard block flexible polyurethane foams; flexible block foams with modified combustion (CME); flexible high resilience; viscoelastic used as mattresses and upholstery material.
Polyols for wood imitation rigid polyurethane foams (ornaments; furniture elements).
Polyols for adhesives; lakes; waste bonding agents.

LAND CONSOLIDATION
Polyols for foaming systems used for ground reinforcement (mines and tunnels).

PACKING
Polyols for adhesives; ink; semi-rigid polyurethane foams used for packaging fragile objects.

CONSTRUCTION
Polyols for rigid polyurethane foam systems for thermal insulation (sandwich panels; doors; pipes; spray-applied insulation) and sealing (single-component foams).
Polyols for adhesives; paint.

ELECTRICAL HOUSEHOLD INSULATIONS
Polyols for rigid polyurethane foam systems for refrigerator thermal insulation; freezers; and boilers.

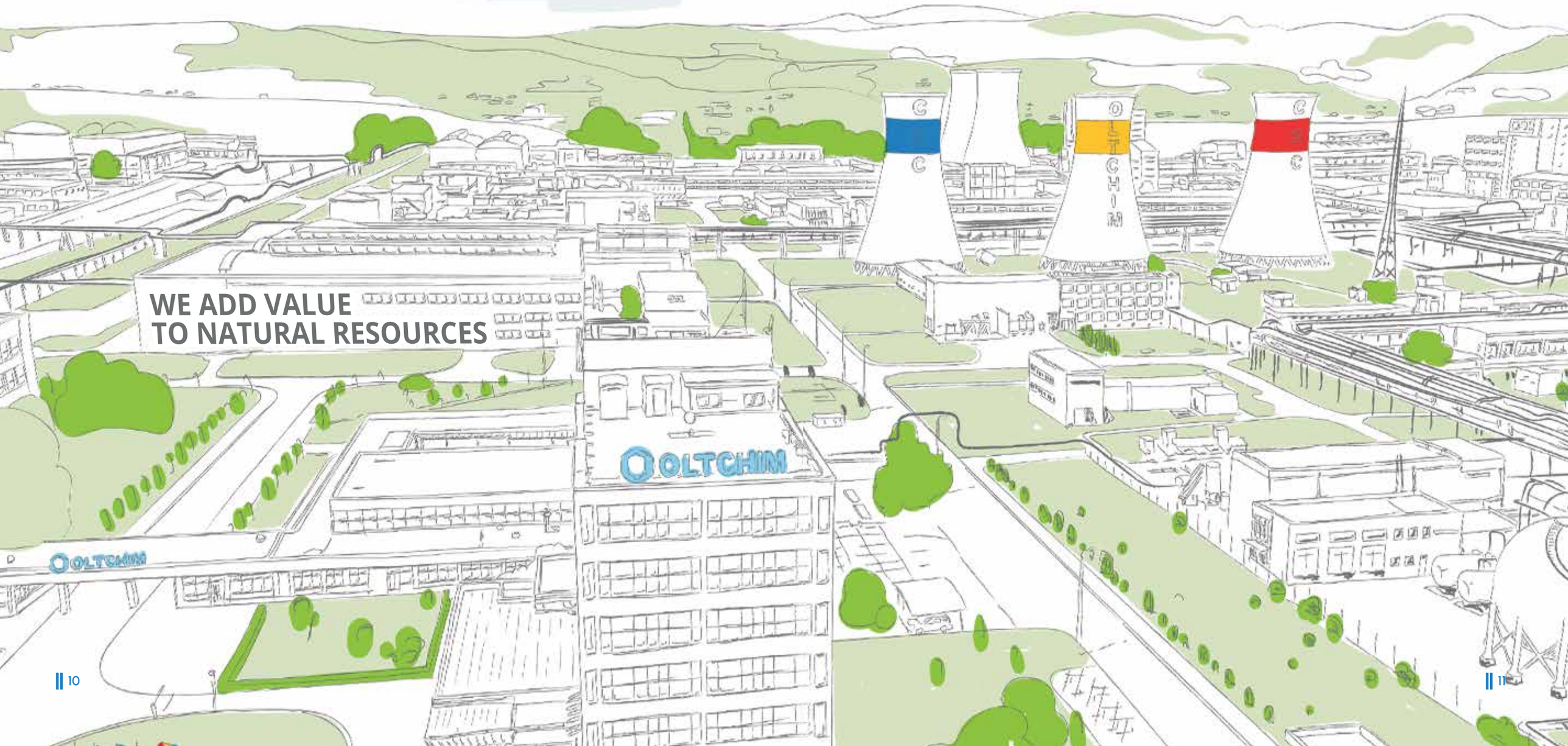
8 **CERTIFICATIONS**
in total **4** for each of the two platforms

The two operational platforms are certified with the highest quality standards and meet the most demanding production conditions and strict rules are applied on product quality upon delivery.
We also comply with customer requirements, implementing improvement measures from notifications/ complaints.
At Chimcomplex, our dedicated team of experts guarantees excellence at every juncture of the manufacturing journey – starting from the inception of polyols at our facilities, all the way to their seamless transit and utilization in your own operations. This meticulous oversight ensures a smooth sailing experience for you, your machinery, and ultimately, your finished goods.
Expect nothing short of reliability and consistency with Chimcomplex by your side.

100 total **PRODUCTS** in our portfolio.

Chimcomplex provides a wide range of products that have applicability in a lot of other essential markets: extractive industry, textile, pulp and paper, pharmaceutical plastics, electronics, home appliances, packaging, sanitation and public hygiene.

Working for a **sustainable future**



ON THE ROAD TO ECOLOGYCAL POLYOLS

Chimcomplex runs on the Râmnicu Vâlcea platform an investment in innovative green technology to produce new environmentally friendly polyols.

This is our initiative to promote and optimize the production of special polyols including validation together with customers, adapting the formula according to their specific needs and increasing the capacity to use the existing production infrastructure.

The project is carried out in partnership with International Development Norway – a Norwegian organization with over 20 years of experience in international projects for the development of good practices in the business field.

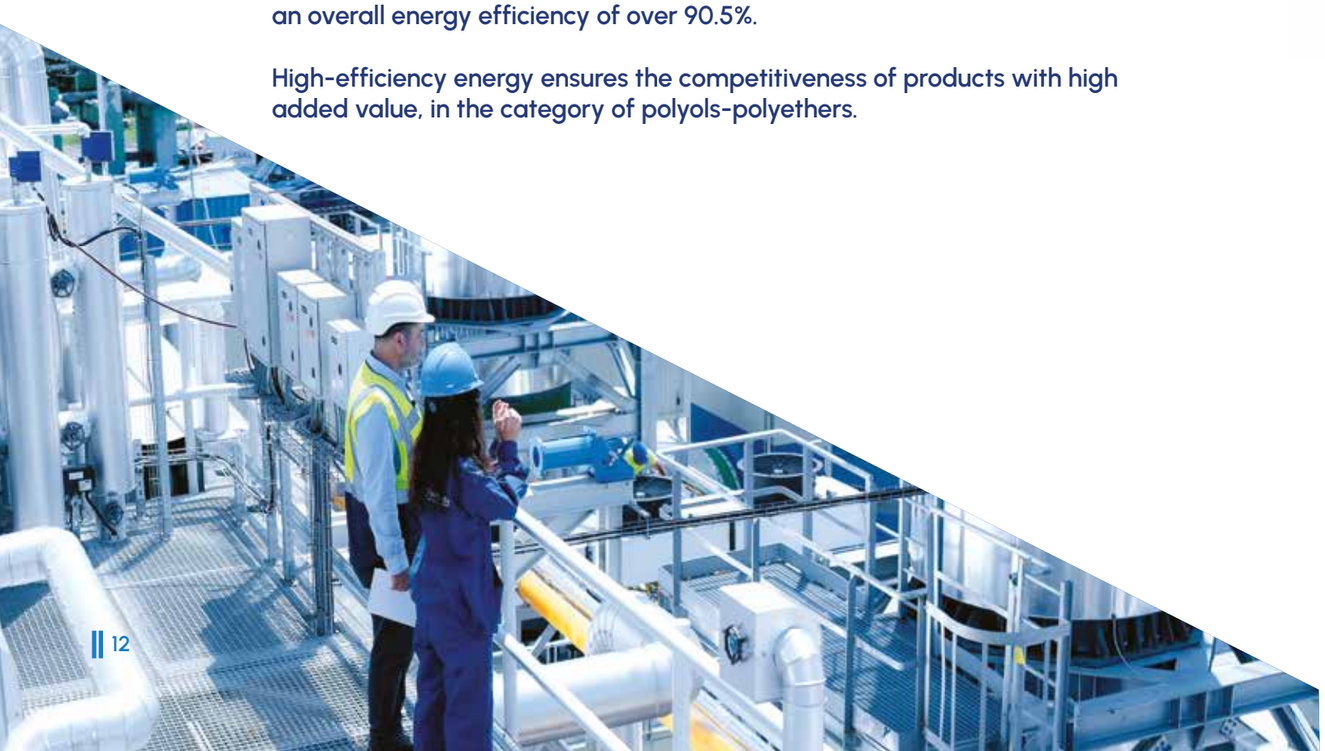
The partnership will contribute to the development of a sustainable concept to reduce the carbon footprint in production processes and to transform our activities by circular economy principles.

49.6 MW COGENERATION PLANT

The largest high-efficiency cogeneration plant built in Romania in the last 11 years was put into use in 2023 on the Chimcomplex platform in Rm. Vâlcea.

This new component of the system will not only secure our energy needs while reducing CO2 emissions by over 80,000 tonnes per year in the first stage but will help us to be even more economically competitive in a market increasingly dynamic. The high-efficiency cogeneration plant has an overall energy efficiency of over 90.5%.

High-efficiency energy ensures the competitiveness of products with high added value, in the category of polyols-polyethers.



CHIMCOMPLEX

PROUD MOMENT FOR ROMANIA!

CHIMCOMPLEX HAS COMPLETED THE INVESTMENT IN THE FIRST TRIGENERATION INSTALLATION IN THE EU!

THE FIRST TRIGENERATION PLANT IN EU

Also in 2023 we finished a new investment in a High-Efficiency Trigeneration Plant with a capacity of up to 8 MWe.

The specific objectives of the project aimed at:

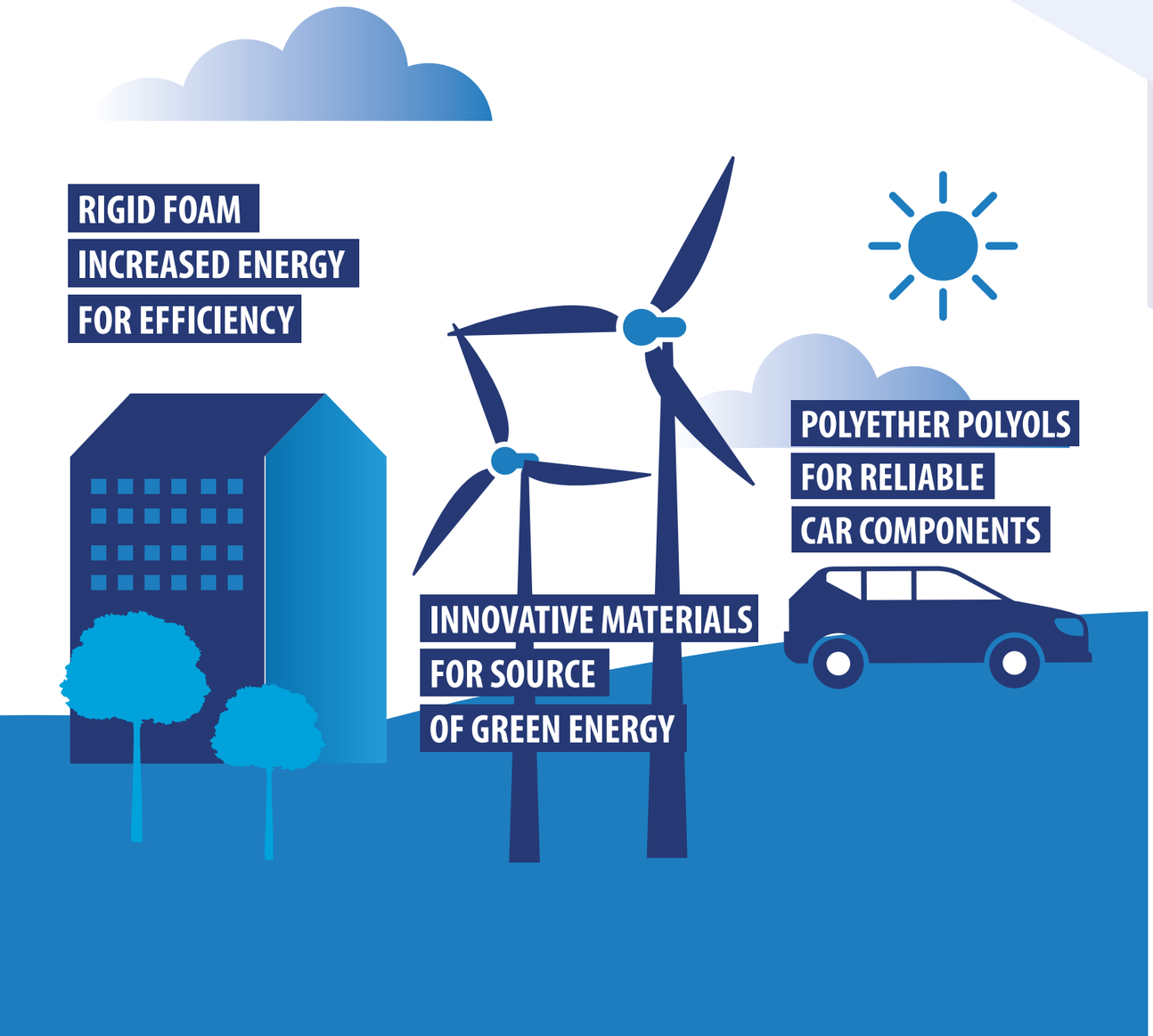
- overall efficiency of energy production higher than in the case of separate production - gross overall efficiency of the installation exceeding 85%.

- reducing pollutant emissions corresponding to the amount of saved fuel - reducing CO2 emissions, depending on the produced electrical energy, by over 1500 tons/year.

- increasing energy efficiency throughout the chain: resources, production, distribution, consumption.

Products

OUR POLYOLS ARE USED DAILY FOR THOUSANDS OF OTHER SAFE AND USEFUL PRODUCTS.



CHIMCOMPLEX PRODUCES PETOL®
A WIDE RANGE OF POLYETHER POLYOLS DESIGNED FOR:

Flexible polyurethane foams slabstock and cold cure molded:

- propoxylated glycerol 3000 molecular weight for CME foams
- non reactive alkoxylated glycerol with molecular weight 3500 – base polyol for standard and modified hardness flexible foams
- polyol with high EO content for soft flexible foams and also for VE foams
- non reactive SAN polymer polyol high solid content and low residual monomers content for enhanced and high load bearing
- EO tipped high molecular triols for high resilience flexible foams and also for molded flexible and semiflexible foams

Petol polyols have a low content of aldehydes, which enables the production of low-emission polyurethane foams.

The 3000 and 3500 molecular weight triols are produced also with DMC catalyst and due to a low unsaturation (low monol content) provide a better processing stability and a higher hardness of the foams.

Case products:

High purity polypropylene glycols with molecular weights ranging from 450 to 4000 g/mol.

The diols with molecular weight less than 2000 are obtain in KOH catalysis.

The PPG 2000 is produced in KOH process but also in DMC process – low monol version.

The PPG 4000 molecular weight is manufacturing in DMC catalysis and have a low unsaturation (low monol content) and are recommended for high performance CASE products.

Rigid Polyurethane Foams:

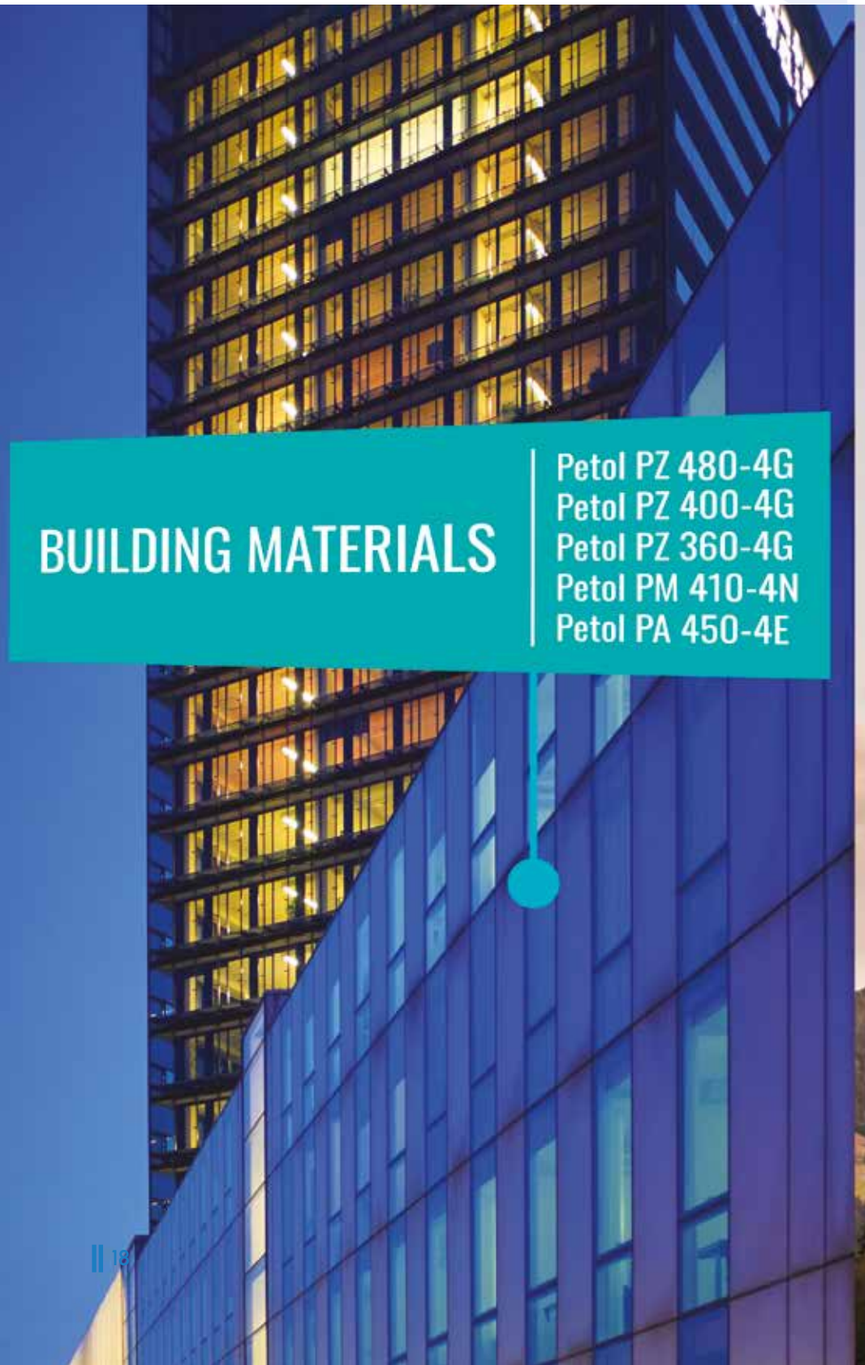
Based on sucrose, sorbitol, alifatic amines and Mannich base, Petol polyols for rigid polyurethane foams are manufacturing in a wide range of functionalities and OH values.

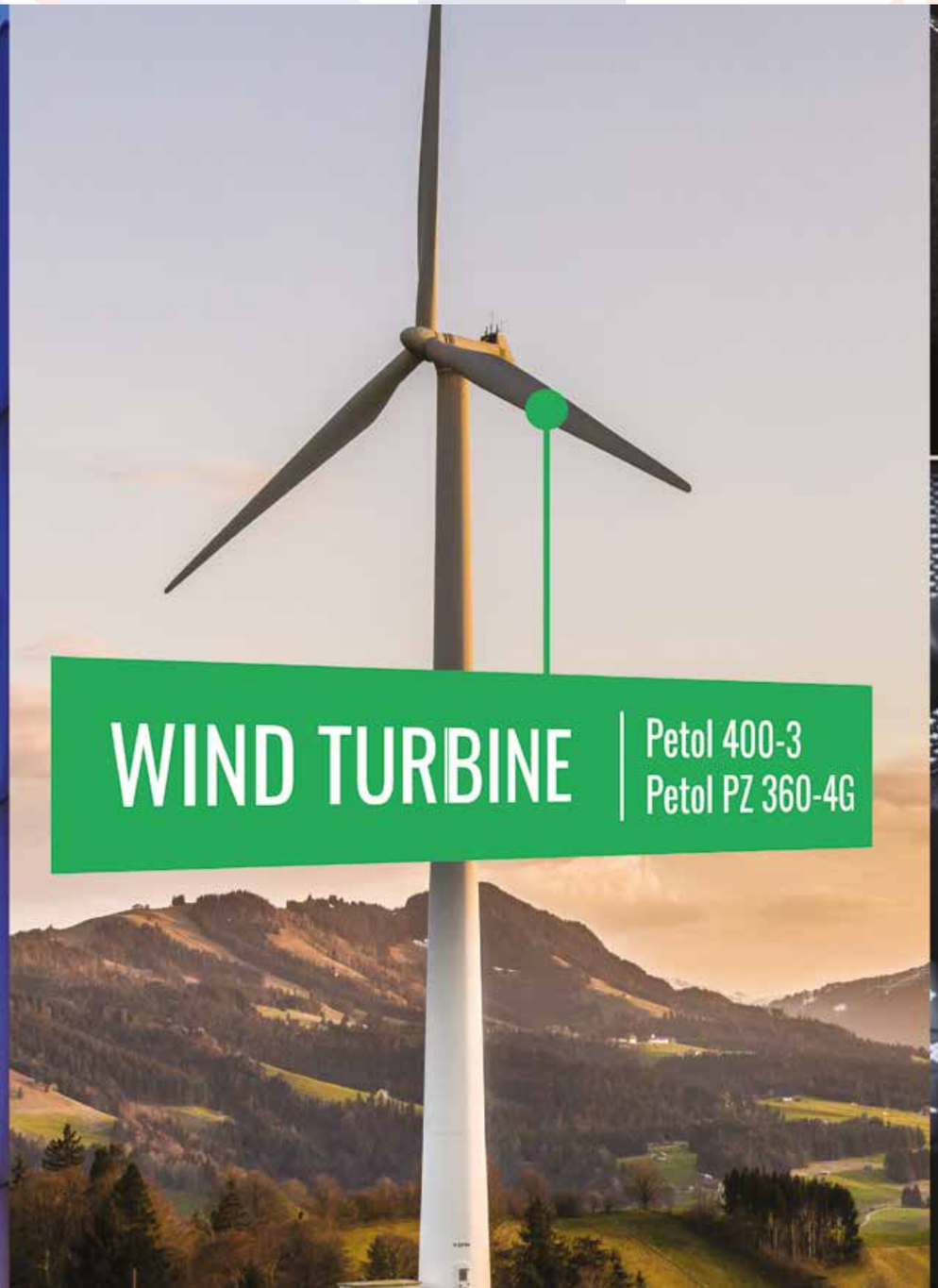
The polyols have a good compatibility with the fourth generation blowing agents (HCFO, HFO) and can be used to formulate a broad spectrum of polyol blends for rigid polyurethane foams for thermal insulations (refrigeration, sandwich panels; pipe-in-pipe; sprayed foams) and wood imitation.

A wide range of propoxylated glycerol is designed for use in polyol blends as a viscosity reducers; as a base polyols for OCF and for 2 K structural adhesives.

Main advantages:

- thermal insulator, simple, easy application, without joints, without mechanical fixings, without affecting other simultaneous works;
- does not cause overload of constructions after insulation and is also recommended for the thermal rehabilitation of old buildings;
- has good adhesion to materials used in civil and industrial construction;
- ensures ambient temperature (prevents heat loss);
- improves sound insulation;
- perfectly seals any spaces, pores, etc.;
- forms a continuous coating without joints and without thermal bridges;
- weather resistance;
- can be applied indoors as well as outdoors;
- traffic resistance;
- eliminates the spaces where insects, rodents, parasites, etc. can live.





POLYETHERS POLYOLS - PETOL®

POLY (PROPYLENE OXIDE) HOMOPOLYMERS (PPG)

General description:

Petol 56-2A, **Petol 110-2A** are high purity polyoxypropylene glycols acidified with a low level of phosphoric acid and containing an antioxidant to comply with food contact regulations.
They are suitable for use in isocyanate-terminated prepolymers.

Petol 120-2, **Petol 250-2** are high purity polyoxypropylene glycols designed for the production of polyurethane elastomers, adhesives, coatings and sealants. They can also be used as a viscosity reducer in polyol blends for rigid foams production.

Petol 56-2LM, **Petol 28-2LM, Petol 28-2B** are high-performance, reactive low monol polyoxypropylene glycols prepared with organo-metallic propoxylation catalysts designed as an intermediary in formulations for manufacturing elastic polyurethane products (coatings, elastomers, adhesives) in particular molded parts made of compact or microcellular polyurethane elastomers.

Type	Name	Hydroxyl value	Acid value (BBT), max.mg KOH/g	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality	Average molecular weight
		mg KOH/g		cP	%	g/cm3		g/mol
56-2B EXP	PETOL	53-59	o.o5	280-380	o.o5	1.000	2	2000
49-2B EXP	PETOL	46.5-50.5	o.o5	400-500	o.o5	1.036	2	2300
28-2B	PETOL	26-29	o.10	840-900	o.o5	1.022	2	4000
56-2A	PETOL	53-59	o.10	840-900	o.o5	1.022	2	4000
56-2LM	PETOL	53-59	o.o5	300-450	o.o5	1.002	2	2000
120-2	PETOL	108-116	o.o5	100-180	o.o5	1.003	2	935
110-2A	PETOL	240-260	o.o5	140-180	o.o5	1.003	2	1000
250-2	PETOL	240-260	o.o5	60-100	o.o8	1.002	2	450
28-2LM	PETOL	26-30	o.o5	900-1200	o.o5	1.001	2	4000
9-2EXP	PETOL	7.5-10.5	o.o2	5000-7000	o.o5	1.001	2	12000

Main application:

- coating
- adhesives
- elastomers
- sealants
- defoamers
- viscosity reducer in polyol blends for polyurethane foams
- flexibleness agent for epoxi resins
- lubricants

Shipping information:

Stainless steel or coated railway or road tanks; drums and IBCs.

Storage & handling:

Being hygroscopic, Poly (propylene oxide) homopolymers (PPG) should be stored in tightly closed containers under nitrogen blanket, in cold, dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures within + 20°C and + 30°C.

QUICK FACTS!

BOTH OUR LOCATIONS ARE EQUIPED TO DELIVER A WIDE VARIETY OF PRODUCTS

Rm. Vâlcea Facility

Production facilities:

- Electrolysis Plant
- Solid Caustic Soda Plant
- Oxo-Alcohols Plant
- Hydrochloric Acid Plant
- Propylene Oxide Plant
- Flexible Polyols Plant
- Rigid Polyols Plant
- Graft Polyols Plant

Onești Facility

Production facilities:

- Electrolysis Plant
- Solid Caustic Soda Plant
- Liquid Chlorine Plant
- Hydrochloric Acid Plant
- Ferric Chloride Plant
- Alkyl Amines Plant
- Lime Chloride Plant
- Calcium Chloride Plant

POLYETHERS POLYOLS - PETOL®

TRIOLS (BASED ON GLYCERINE) FOR FLEXIBLE FOAMS

General description:

Petol 46-3MB and **Petol 48-3MB** are heteropolymer triols, designed for the manufacture of standard, soft and super soft flexible slabstock polyurethane foams. They can be used with or without auxiliary blowing agent (liquid CO2; methylene chloride) to produce a wide range of foam grades, ranging from low to high density.

Petol 46- 3MB and **Petol 48-3M**B are BHT-free products that can be processed on all state-of-the-art slabstock machinery.

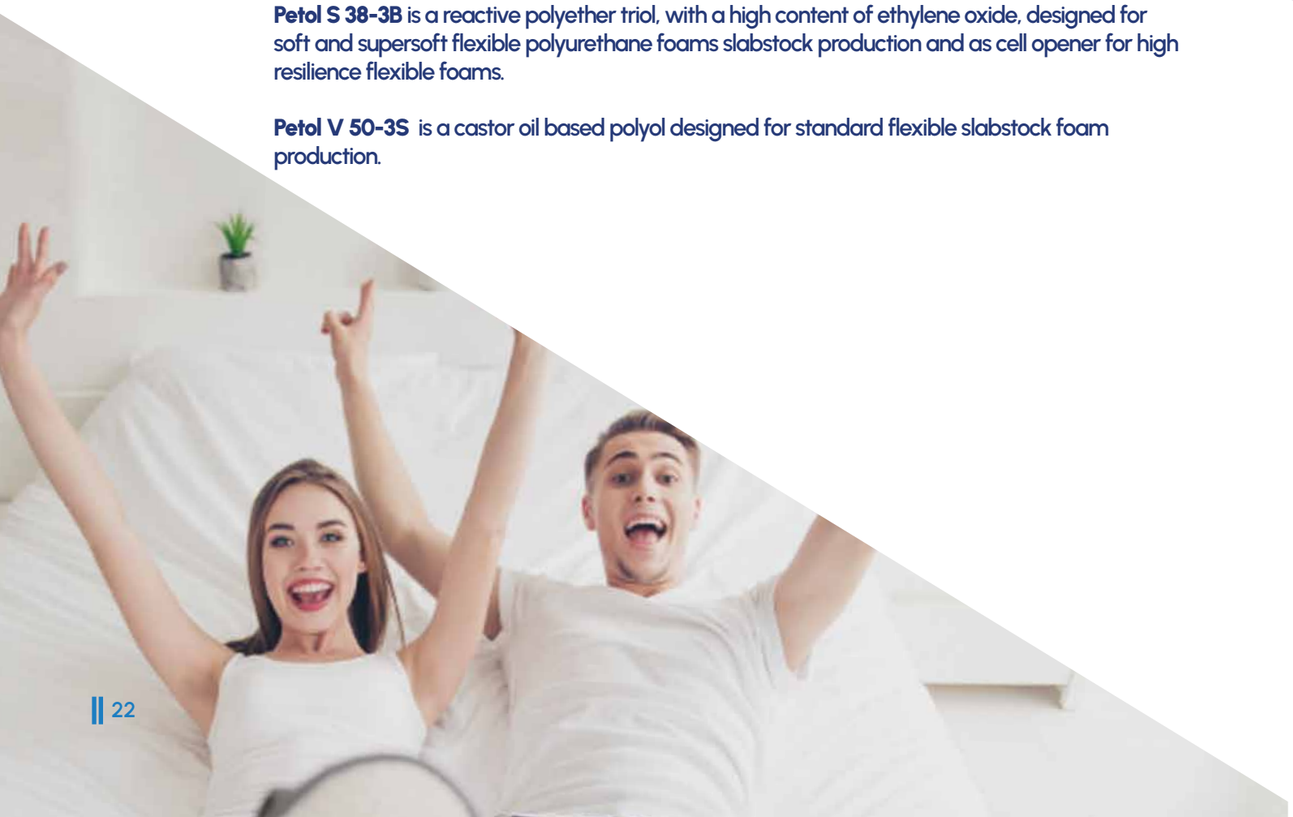
Petol 56-3 is a homopolymer triol designed to increase the hardness of flexible foams and to produce CME (Combustion Modified Ether) flexible polyurethane foams. Petol 56-3 is a BHT-free product that can be processed on various foam machines. The product can also be used in polyol blends for rigid foams production.

Petol 36-3BR is a high reactivity capped triol designed for high resilience block; cold-cure flexible and semi-rigid molded foams. The product has a high content of primary hydroxyl groups and is normally used in TDI/MDI or MDI blend formulations.

Petol 28-3B is a high reactivity capped triol designed for high resilience flexible slabstock and molded foams.

Petol S 38-3B is a reactive polyether triol, with a high content of ethylene oxide, designed for soft and supersoft flexible polyurethane foams slabstock production and as cell opener for high resilience flexible foams.

Petol V 50-3S is a castor oil based polyol designed for standard flexible slabstock foam production.



PETOL 56-3LM is a polyether polyol triol, a propylene oxide homopolymer, with an average molecular weight 3000 and low monol content, designed for flexible slabstock polyurethane foam especially combustion modified ether (CME).

PETOL 48-3S is a heteropolymer triol, with nominal molecular weight of 3500, with low monol content, developed for the manufacture of conventional flexible slabstock polyurethane foams.

PETOL 48-3S can be used with or without auxiliary blowing agent to produce a wide range of foam grades, ranging from low to high density. The product can be processed on all equipments used for polyurethane foam slabstock production.

Type	Name	Hydroxyl value	Acid value (BBT), max.mg KOH/g	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality	Average molecular weight
		mg KOH/g		cP	%	g/cm3		g/mol
46-3MB	PETOL	43-49	o.o5	500-700	o.o1	1.015	3	3600
48-3MB	PETOL	46-50	o.o5	530-630	o.o1	1.015	3	3500
56-3	PETOL	53-59	o.o5	400-600	o.o1	1.005	3	3000
36-3BR	PETOL	33-39	o.o5	700-1000	o.o1	1.017	3	4800
28-3B	PETOL	26-30	o.o5	1050-1300	o.o1	1.015	3	6000
S38-3B	PETOL	36-40	o.1	1050-1250	o.o1	1.08	3	4400
56-3LM	PETOL	53-59	o.o5	500-700	o.o1	1.005	3	3000
48-3S	PETOL	46-50	o.o5	630-830	o.o1	1.015	3	3500
V 50-3S	PETOL	48-54	o.o5	700-900	o.1	-1	2.7	3000

EXPERIMENTAL POLYOLS

Type	Name	Hydroxyl value	Acid value (BBT), max.mg KOH/g	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality	Average molecular weight
		mg KOH/g		cP	%	g/cm3		g/mol
V 60-3 EXP	PETOL	57-56	o.o5	700-900	o.1	o.98	2.7	2500

Main application:

- flexible slabstock foams (standard, soft or super soft)
- high resilience flexible slabstock foams
- high resilience molded polyurethane foams
- semi-rigid and integral skin foams

Shipping information:

Stainless steel or coated railway or road tanks; drums and IBCs.

Storage & handling:

Being hygroscopic, Triols (based on Glycerine) for flexible foams should be stored in tightly closed containers under nitrogen blanket, in cold, dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures within + 20°C and + 30°C.

POLYETHERS POLYOLS - PETOL®

TRIOLS (BASED ON GLYCERINE) FOR SPECIAL APPLICATIONS

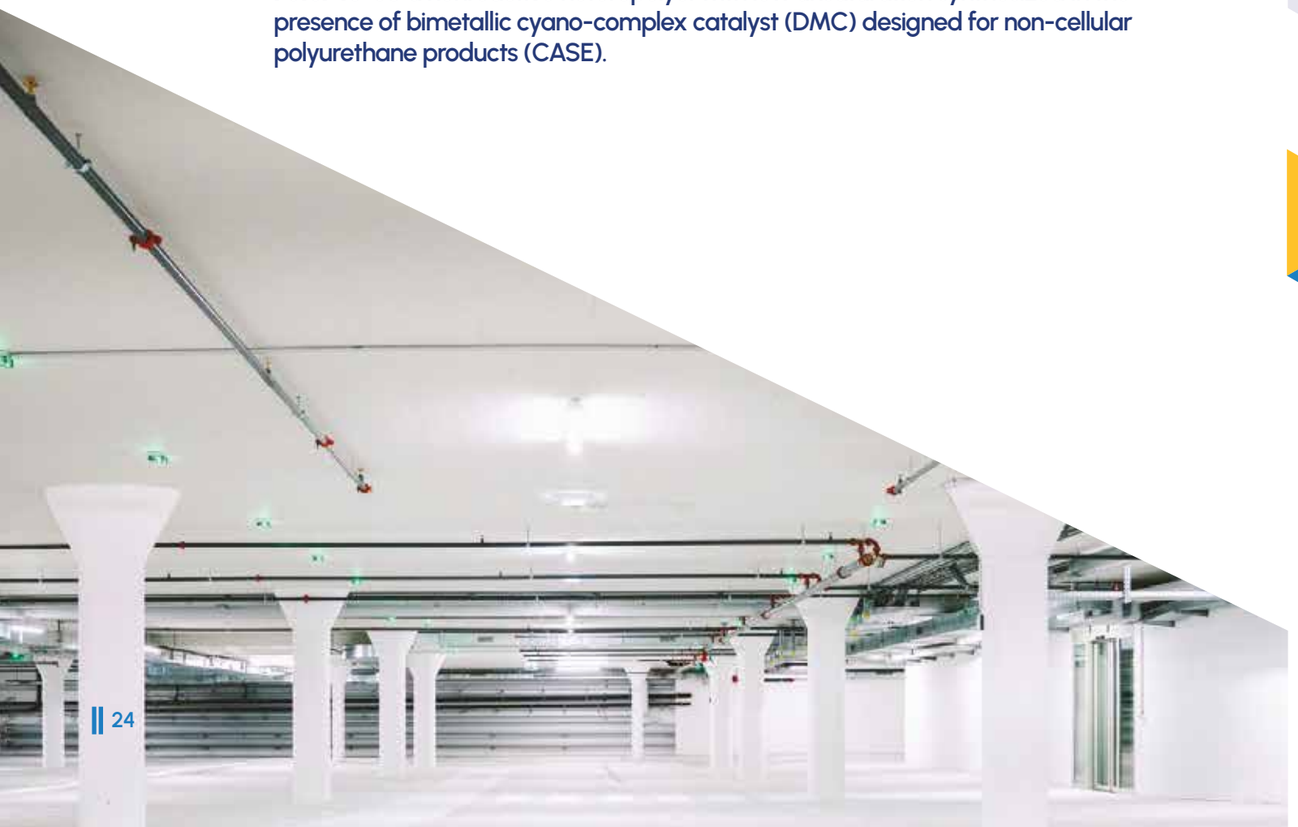
General description:

Petol 160-3 is a polyoxypropylene triol, the standard polyol for one-component spray foams. The product can also be used in polyol blends for manufacturing polyurethane elastomers, coatings, adhesives and special polyurethane foams, as a flexibilizer agent for epoxy resins.

Petol 250-3 is a polyoxypropylene triol used in manufacturing rigid, semi-rigid and special flexible polyurethane foams. If blended with other PETOL Polyether Polyols, it can vary physical and mechanical characteristics of semi- rigid and rigid polyurethane foams. Petol 250-3 is also used in blends for manufacturing coatings, adhesives and casting elastomers.

Petol 400-3 is a polyoxypropylene triol, a low viscosity polyol used in polyol blends for rigid polyurethane foam applications. If blended with other PETOL Polyether Polyols, it can vary physical and mechanical characteristics of semi-rigid and rigid polyurethane foams. PETOL 400-3 is also used in the production of adhesives and coatings.

Petol 45-3S a nonreactive heteropolyol with low unsaturation synthesized in the presence of bimetallic cyano-complex catalyst (DMC) designed for non-cellular polyurethane products (CASE).



Type	Name	Hydroxyl value	Acid value (BBT), max.mg KOH/g	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality	Average molecular weight
		mg KOH/g		cP	%	g/cm3		g/mol
160-3	PETOL	150-170	o.o5	240-300	o.o8	1.018	3	1000
250-3	PETOL	240-260	o.o5	240-300	o.o8	1.027	3	670
400-3	PETOL	360-400	o.1	330-430	o.o8	1.05	3	440
45-3S EXP	PETOL	43-47	o.o5	660-820	o.o5	-	3	3740

Main application:

- base polyols for OCF
- rigid foams formulations
- CASE applications
- flexibleness agent for epoxi resins
- hydraulic fluids

Shipping information:

Stainless steel or coated railway or road tanks; drums and IBCs.

Storage & handling:

Being hygroscopic, Triols (based on Glycerine) for special applications should be stored in tightly closed containers under nitrogen blanket, in cold, dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures within + 20°C and + 30°C.

QUICK FACTS!

CHIMCOMPLEX HAS DEMONSTRATED GROWING POTENTIAL DUE TO ITS STRATEGIC ADVANTAGES

- Our location and access to land transport (road and rail) ensures good access to the demands of both the Western and Eastern markets
- We have readily available raw materials (salt, lime and propylene)
- We leverage synergies of the integrated operations of the two platforms
- Our operating personnel are highly qualified and specialized
- Best Available Technology in all our processes

POLYETHERS POLYOLS - PETOL®

SAN POLYMER POLYOLS
(STYRENE-ACRYLONITRILE COPOLYMER GRAFTED ON THE POLYETHER CHAINS)

General description:

Petol PP 452 a non-reactive polymer polyol with 45 % solid content and 3000 molecular weight af base polyol designed for High Load Bearing (HLB) flexible slabstock foam production.

Petol PP 251, **Petol PP 151** and **Petol PP 101** are non-reactive polymer polyols with a solid content from 10 to 27% and 3500 average molecular weight of standard polyol, designed to obtain enhanced load bearing flexible slabstock foams.

Petol PP 2045 is a reactive polymer polyol with about 45 % solid content and 4800 average molecular weight of base reactive polyol, designed to obtain high resilience flexible polyurethane foams (HR).
These polymer polyols can be used alone or blended with other polyols.

Type	Name	Hydroxyl value	Solid Content	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality	Average molecular weight
		mg KOH/g	%	cP	%	g/cm3		g/mol
PP 451	PETOL	28-34	44-47	3800-4600	o.1	1.03	3	3500
PP 452	PETOL	28-36	44-47	3500-4600	o.1	1.03	3	3000
PP 251	PETOL	36-40	24-27	1000-1700	o.1	1.028	3	3500
PP 151	PETOL	39-43	14-16	850-1100	o.o8	1.025	3	3500
PP 101	PETOL	41-45	9-11	700-1000	o.o8	1.02	3	3500
PP 2045	PETOL	18-22	44-46	5500-8000	o.1	1.05	3	4800

Main application:

Slabstock flexible polyurethane foams.

Shipping information:

Stainless steel or coated railway or road tanks; plastic drums and IBCs.

Storage & handling:

Being hygroscopic, SAN POLYMER POLYOLS (Styrene-Acrylonitrile Copolymer grafted on the Polyether Chains) should be stored in tightly closed containers under nitrogen blanket, in cold, dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures within + 20°C and + 30°C.

POLYETHERS POLYOLS - PETOL®

SUCROSE/SORBITOL BASED POLYOLS

General description:

Petol PZ 360-4G is a medium functionality sucrose based polyether-polyol with low viscosity. This Polyether Polyol is used especially in polyol blends with high water levels for rigid polyurethane foam applications (wood imitation, conventional insulation applications).

Petol PZ 400-4G is a medium functionality sucrose based polyether polyol, a general purpose standard polyol for rigid polyurethane foams used in various rigid applications (continuous and discontinuous panel production process, appliances).

Petol PZ480-4G is a medium functionality sucrose based polyether polyol developed for the production of rigid polyurethane foams. It is used as a standard polyol for various rigid applications such as rigid block production, pipe insulation and continuous and discontinuous panel production process.

Petol PZ 400-5G is a high functionality sucrose based polyether polyol, a general purpose standard polyol for rigid polyurethane foams used in various rigid applications (sandwich panels, appliances, refrigerators, doors) and thermal insulation applied by spray technique.

Petol PS 460-5P, **Petol PS 500-5G**, **Petol PS 500-4G**, **Petol PS 400-4G** and **Petol PS 480-6**, are medium functional polyether polyols obtained by propoxilation of sorbitol-glycerol blends under catalyst conditions, used as a base polyols for rigid polyurethane foams.

PZ 585-4D is a medium functionality sucrose – diethanolamine mixture propoxylation used for the production of rigid polyurethanes foams.

Type	Name	Hydroxyl value	Average molecular weight	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality
		mg KOH/g	g/mol	cP	%	g/cm3	
PZ 360-4G	PETOL	345-375	700	2700-3700	o.1	1.05-1.15	4.6
PZ 400-4G	PETOL	400-450	630	4000-6000	o.1	1.05-1.15	4.5
PZ 480-4G	PETOL	460-490	530	6500-9000	o.1	1.05-1.15	4.5
PZ 400-5G	PETOL	400-450	700	5000-11000	o.1	1.05-1.15	5
PZ 585-4D	PETOL	570-590	387	4000-4500	o.05	1.1	4
PS 460-5P	PETOL	440-480	650	12500-15500	o.1	1.07-1.09	5.4
PS 500-5G	PETOL	480-520	550	7500-10500	o.1	1.08-1.09	4.8
PS 500-4G	PETOL	480-520	450	2000-4000	o.1	1.07-1.09	4
PS 400-4G	PETOL	400-450	630	3000-5000	o.1	1.09-1.1	4.5
PS 480-6	PETOL	460-500	700	30000 - 40000	o.2	1.08-1.12	6

Main application:

Polyol blends for rigid polyurethane foams.

Shipping information:

Stainless steel or coated rail or car tanks, provided with shell or coil, in clean, dry, tightly closed TDA drums of 100l and 200l; plastic drums and IBCs.

Storage & handling:

Being hygroscopic products, Sucrose/Sorbitol based Polyols should be stored in tightly closed containers under nitrogen blanket, in dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures between +20° C - +30° C for Sucrose based Polyols and +25° C - +35° C for Sorbitol based Polyols.

POLYETHERS POLYOLS - PETOL®

ALIPHATIC AMINES AND MANNICH POLYOLS

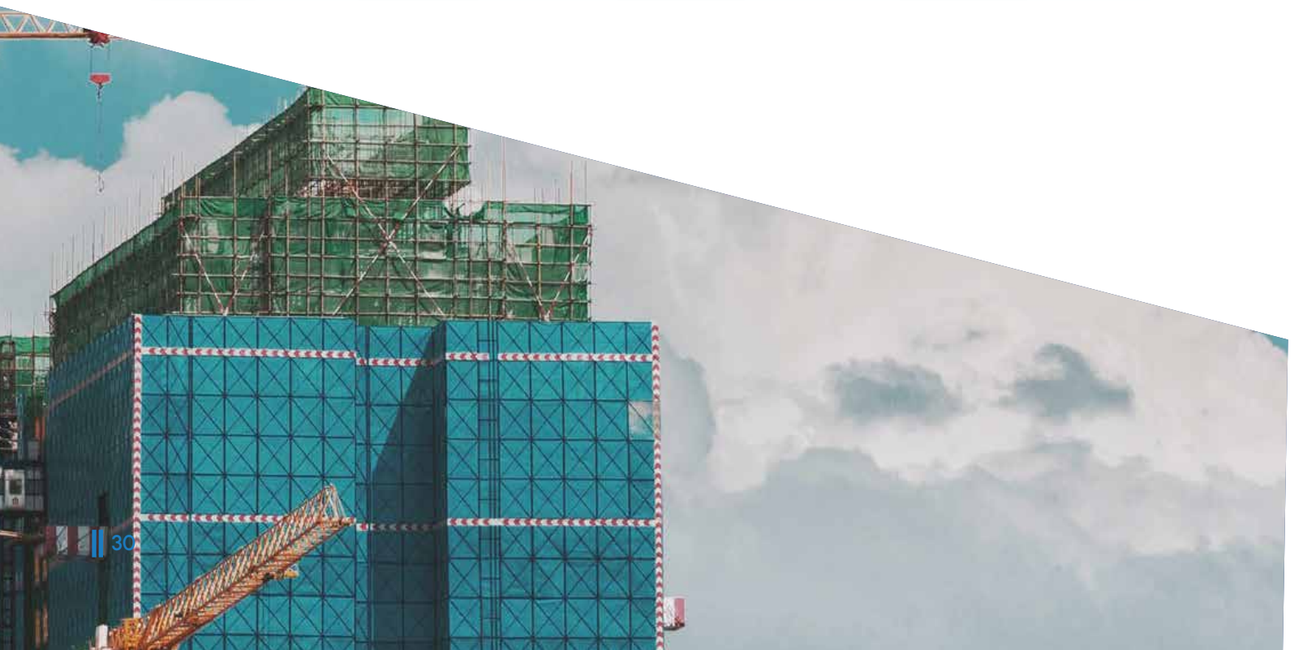
General description:

Petol PA 450-4E and **Petol PA 640-4E** are propoxylated ethylene diamine used as a crosslinker agent for rigid and semirigid polyurethane foams.

Petol PA 450-3T is an Aminic Polyether Polyol with high reactivity, obtained by propoxilation of triethanolamine, used as crosslinker agent for rigid polyurethane foams, semi rigid foams or as a viscosity reducer of polyols blend.

Petol PM 410-4N is a Mannich Polyol based on nonylphenol and used in polyol blends for poured and sprayed polyurethane rigid foams.

Type	Name	Hydroxyl value	Average molecular weight	Viscosity at 25 °C	Water (Karl-Fischer)max	Typical density at 25 °C	Function-ality
		mg KOH/g	g/mol	cP	%	g/cm3	
PA 450-4E	PETOL	430-470	500	3000-5000	0.1	1.02-1.07	4
PA 640-4E	PETOL	615-665	350	14500-19500	0.1	1.02-1.07	4
PA 450-3T	PETOL	400-500	375	300-400	0.1	1.04-1.06	3
PM 410-4N	PETOL	400-440	530	8000-15000	0.1	1.025	3



Main application:

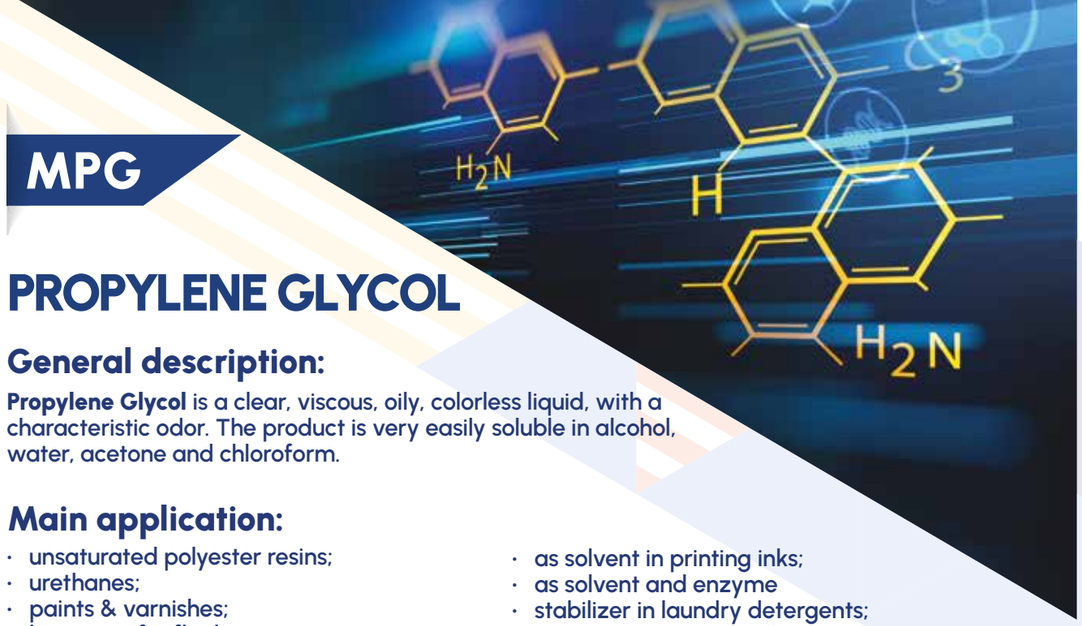
- rigid polyurethane foams;
- crosslinker agent;
- semirigid polyurethane foams.

Shipping information:

Stainless steel, coated railway or road tanks; drums and IBCs.

Storage & handling:

Being hygroscopic products, ALIPHATIC AMINES AND MANNICH POLYOLS should be stored in tightly closed containers under nitrogen blanket, in dry, vented areas, far from heat, moisture and inconsistent materials, at temperatures between + 20°C and + 30°C.



MPG

PROPYLENE GLYCOL

General description:

Propylene Glycol is a clear, viscous, oily, colorless liquid, with a characteristic odor. The product is very easily soluble in alcohol, water, acetone and chloroform.

Main application:

- unsaturated polyester resins;
- urethanes;
- paints & varnishes;
- heat transfer fluids;
- antifreezes, polyether polyols, antifoaming agents;
- as glycerin substitute in fine organic synthesis;
- as solvent in printing inks;
- as solvent and enzyme
- stabilizer in laundry detergents;
- stabilizer in hydraulic fluid;
- plasticizer to improve process ability of plastics, demulsifying;
- cellophane manufacturing.

Technical quality conditions:

Characteristics	MU	Values
Appearance	-	viscous, clear liquid
Propylene glycol, min	%	99.5
Distillation range (95% vol.)	°C	185-189
Water (Karl-Fischer), max.	%	0.25
Acidity (CH3COOH), max.	%	0.005
Hazen color, max.	Hazen units	10
Ashes, max.	%	0.01

Specific properties	Values
Density at 20°C, g/cm³	1.037
Boiling point at 760 mm Hg	188.2°C
Ignition temperature	99°C
Flammability	Not flammable

Shipping information:

Propylene Glycol is packed in stainless steel or carbon steel tanks with adequate internal protection, with a capacity of 20 or 40 tons, property of supplier or customer, or in other stainless steel or aluminum, clean and dry containers.

Storage & handling:

It is stored in specially designed, shed-type storage facilities, with concrete platform. In the case of storage in reservoirs, a slight overpressure with inert gas will be created to avoid moisture infiltration (the product is hygroscopic).
Before handling and using of product, the personnel must be aware of the dangers implied.

OXO-ALCOHOLS

OCTANOL
(2-ETHYL-HEXANOL)

General description:

Octanol (2-Ethyl-hexanol) is a colorless liquid with a specific odor. The product is little soluble in water.It is combustible and flammable. On heating above 75°C, octanol vapors give explosive mixtures with air. By heating to decomposition, octanol gives carbon monoxide and dioxide. It can also give irritant and corrosive gases.

Main application:

- in plasticizers manufacturing;
- in synthetic lubricants manufacturing;
- in surfactants and antifoaming agents manufacturing;
- as low volatility solvent for animal fats and vegetal and mineral oils;
- as wetting and dispersion agent for textiles.

Technical quality conditions:

Characteristics	MU	Values
2 Ethyl-hexanol, min.	%	99.7
Distillation range (95% vol.)	°C	183-185
Acidity (CH3COOH), max.	%	0.01
Water (Karl-Fischer), max.	%	0.05
Color, max.	Hazen units	5
Aldehydes and cetones content (2 ethyl-hexanal), max	%	0.050
Unsaturated content (2 ethyl-hexenal), max	%	0.01
Color after H2SO4 test (1 h la 95°C) , max	Hazen units	20

Specific properties	Values
Density, g/cm³	0.832
Boiling temperature, °C	183-186
Ignition temperature, °C	75
Flammability	flammable

The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

The product is packed in 20 or 40 tons steel tanks, property of supplier or client.

Storage & handling:

In case of reservoirs storage it is recommended to provide a nitrogen blanket and ventilation systems with flame traps. Octanol (2-Ethyl-hexanol) is a toxic product. Before handling and using of product, the personnel must be aware of the dangers implied.

OXO-ALCOHOLS

ISO-BUTANOL
(2-METHYL-PROPANOL)

General description:

Iso-butanol is a colorless liquid, with a characteristic odor.
Mixed with air, within 1.45 to 11.25% vol. limits, iso-butanol forms explosive mixtures.

Main application:

- solvent in the industry of nitro-cellulose and alkyd resin based varnishes;
- solvent in synthetic leather manufacturing;
- extraction agent for oils, drugs, perfumes, hormones, antibiotics, vitamins;
- in preparing flotation agents for ore;
- solvent for oven dried, urea and phenolic resin based varnishes.

Technical quality conditions:

Characteristics	MU	Values
Iso-butanol, min.	%	99.5
Distillation range (95% vol.)	°C	106-109
Acidity (CH COOH), max.	%	0.006
Water (Karl-Fischer), max.	%	0.1
Color, max.	Hazen units	10
Non-volatile, max.	%	0.0025

Specific properties	Values
Density, g/cm³	0.801
Boiling temperature, °C	106-108
Ignition temperature, °C	28 (colsed up)
Flammability	flammable

The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

Supplier steel tanks lined with rubber or polyvinyl chloride, with a capacity of 50 tones.

Storage & handling:

The product will be stored in cold, covered areas, away from fire or other sources of ignition. Iso-butanol is a toxic product. Iso-butanol is incompatible with alkali metals, aluminum, strong oxidizers, acetaldehydes, isocyanates, chlorine. Before handling and using of product, the personnel must be aware of the dangers implied.

OXO-ALCOHOLS

N-BUTANOL
(NORMAL BUTANOL)

General description:

N-Butanol is a clear, colorless liquid, with a characteristic odor.
N-Butanol is incompatible with strong oxidizers (permanganates, perhydrol).
It reacts with strong mineral acids.

Main application:

- plastic materials and rubber industries;
- solvent in the industry of nitro-cellulose and alkyd resins based varnishes;
- solvent in synthetic leather manufacturing;
- solvent used in oils, drugs, perfumes extraction;
- raw material in production of hormones, vitamins;
- in plasticizers industry (di-butyl phthalate);
- solvent for urea and phenol resin based varnishes, oven dried.

Technical quality conditions:

Characteristics	MU	Values
n-Butanol, min.	%	99.0
Distillation range (95% vol.)	°C	116.0-118.5
Acidity (CH3COOH), max.	%	0.006
Water (Karl-Fischer), max.	%	0.1
Color, max.	Hazen units	10

Specific properties	Values
Density at 20°C, g/cm³	0.810
Boiling temperature, °C	117,5
Ignition temperature, °C	34
Flammability	flammable

The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

N-Butanol is packed in 20 or 40 tone steel tank cars, propriety of supplier or client.

Storage & handling:

Product in stored in covered, cold areas, away from fire or other sources of ignition.

CAUSTIC SODA LIQUID

General description:

Caustic soda lye (sodium hydroxide solution) is manufactured by the electrolysis of brine using membrane technology. It is a clear, colorless and odorless liquid. Sodium hydroxide is a strong electrolyte, being completely ionized in solution state. It is a stable product when stored under normal conditions of pressure and temperature, in tightly closed tank cars or containers.

Main application:

- oil industry;
- petrochemical industry;
- aluminum industry;
- pulp and paper industry;
- soap and detergents industry;
- chemical industry;
- food industry;
- pharmaceutical industry;
- water treatment;
- textile industry at the manufacturing of cellulose
- fibers by viscose process.

Technical quality conditions:

Characteristics	MU	Values
Appearance	-	clear liquid, free of mechanical impurities
Sodium hydroxide (NaOH), min.	%	48
Sodium carbonate (Na2CO3), max.	%	0.25
Sodium chloride (NaCl), max	%	0.050
Iron oxides (Fe_2O_3), max.	%	0.001

Specific properties	Values
pH	strongly alkaine
Boiling point	145°C
Ilgnition temperature	not ignitable
Density at 25°C	1.53

The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

Caustic soda solution is delivered in inner covered steel tanks equipped with heating coils, supplier or customer property, 20 or 40 tons capacity.

Storage & handling:

Caustic soda solution is stored in inner covered steel reservoirs or tanks.
Caustic soda solution is a corrosive product.
Before handling and using of product, the personnel must be aware of the dangers implied.

CAUSTIC SODA SOLID

General description:

Caustic soda solid is obtained from sodium hydroxide - technical grade.
It is a solid, white, hygroscopic, odorless substance. Caustic soda solid easily dissolves in water, with heat release. The product is soluble in methyl and ethyl alcohols. Sodium hydroxide is a strong electrolyte (completely ionized both in crystalline and solution states). Sodium hydroxide is not volatile, but it rises easily in air as aerosols. It is insoluble in ethyl ether.

Main application:

- oil industry;
- petrochemical industry;
- aluminum industry;
- pulp and paper industry;
- soap and detergents industry;
- chemical industry;
- food industry;
- pharmaceutical industry;
- water treatment;
- textile industry at the manufacturing of cellulose fibers by viscose process.

Technical quality conditions:

Characteristics	MU	Block	Flakes
Sodium hydroxide (NaOH), min.	%	98	98
Sodium carbonate (Na_2CO_3), max.	%	0.5	0.7
Sodium chloride (NaCl), max	%	0.15	0.15
Iron oxides (Fe_2O_3), max.	%	0.01	0.004

Specific properties	Values
pH	strongly alkaine
Boiling point	1390°C
Ignition temperature	not ignitable
Relative density at 25°C	2.13
Melting point	318°C

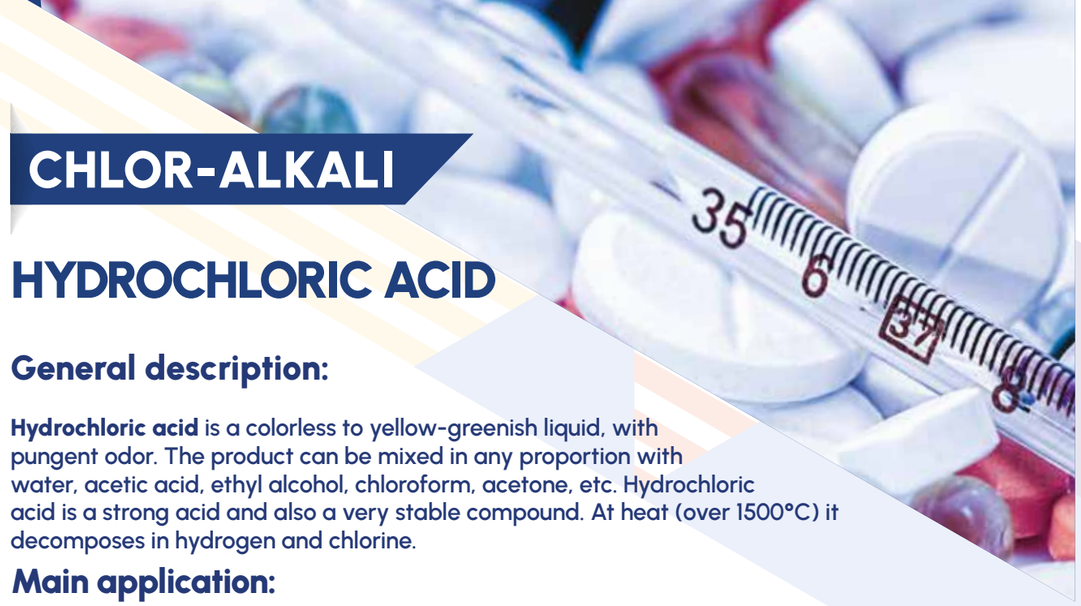
The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

Caustic Soda block is delivered in corrugated sheet drums, 0.5 mm thick, unpainted, maximum capacity of 400 kg net (maximum allowable tolerance ± 4 kg).
Caustic Soda flakes and pearls are packed in palletized polyethylene bags of 25 kg (permissible variation ±0.2kg) and in 1 ton (permissible variation ±5 kg) bags made of polypropylene lined with polyethylene.

Storage & handling:

Caustic soda storage is provided in dry warehouses. Caustic soda is a corrosive product.
Before handling and using of product, the personnel must be aware of the dangers implied.



HYDROCHLORIC ACID

General description:

Hydrochloric acid is a colorless to yellow-greenish liquid, with pungent odor. The product can be mixed in any proportion with water, acetic acid, ethyl alcohol, chloroform, acetone, etc. Hydrochloric acid is a strong acid and also a very stable compound. At heat (over 1500°C) it decomposes in hydrogen and chlorine.

Main application:

- inorganic and organic chemical industry;
- pharmaceutical industry;
- synthetic fibers industry;
- metalworking industry (for scouring and decaling);
- as regenerating agent for ion exchange resins used in water demineralization plants;
- leather industry;
- oil industry as neutralizing agent, for oil processing;
- metallurgical industry as pickling and cleaning agent;
- rubber industry, for chloroprene synthesis;
- ceramic and textile industries.

Technical quality conditions:

Characteristics	MU	Type I	Type II
Appearance	-	clear liquid	
Color	-	colorlesss to yellow-greenish	
Hydrogen chloride (HCl), min.	%	32	
Iron (Fe), max.	%	0.001	0.004
Chlorine (Cl2), max.	%	0.01	

Specific properties	Values
pH	0,1 (solution 4%)
Boiling point	-84°C
Density, g/cm³	1.19
Ignition temperature	not ignitable

The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

It is packed in lined steel tanks (ebonite covering), supplier or client property.

Storage & handling:

It is stored in lined steel tanks (ebonite covering) equipped with degassing pipes.
Hydrochloric acid is an aggressive and toxic product.
Before handling and using of product, the personnel must be aware of the dangers implied.

SODIUM HYPOCHLORITE

General description:

Sodium hypochlorite is obtained by passing chlorine through a solution of sodium hydroxide.
The aqueous solution is clear, pale yellow or greenish, with a specific odor of chlorine.

Main application:

- as bleaching agent in textile, paper and pulp industries;
- as oxidizing agent in chemical industry;
- water treatment;
- as disinfectant agent in housekeeping;
- textile industry for production of viscose fiber and silk;
- power industry, etc.

Technical quality conditions:

Characteristics	MU	Values
Appearance	-	clear liquid
Color	-	yellow-greenish
Active chlorine (Cl), min.	%	13
Chlorides (Cl), max.	%	1.5
Free sodium hydroxide	%	0.7 - 2
Sodium carbonate, max.	%	2

Specific properties	Values
Relative molecular weight	74.44
Boiling point (range)	48 – 76°C, with decomposition in sodium chlorate and chloride
Density, g/cm³	1.09 for solution 5.25%
	1.15 for solution 8.0%
	1.21 for solution 12.0%

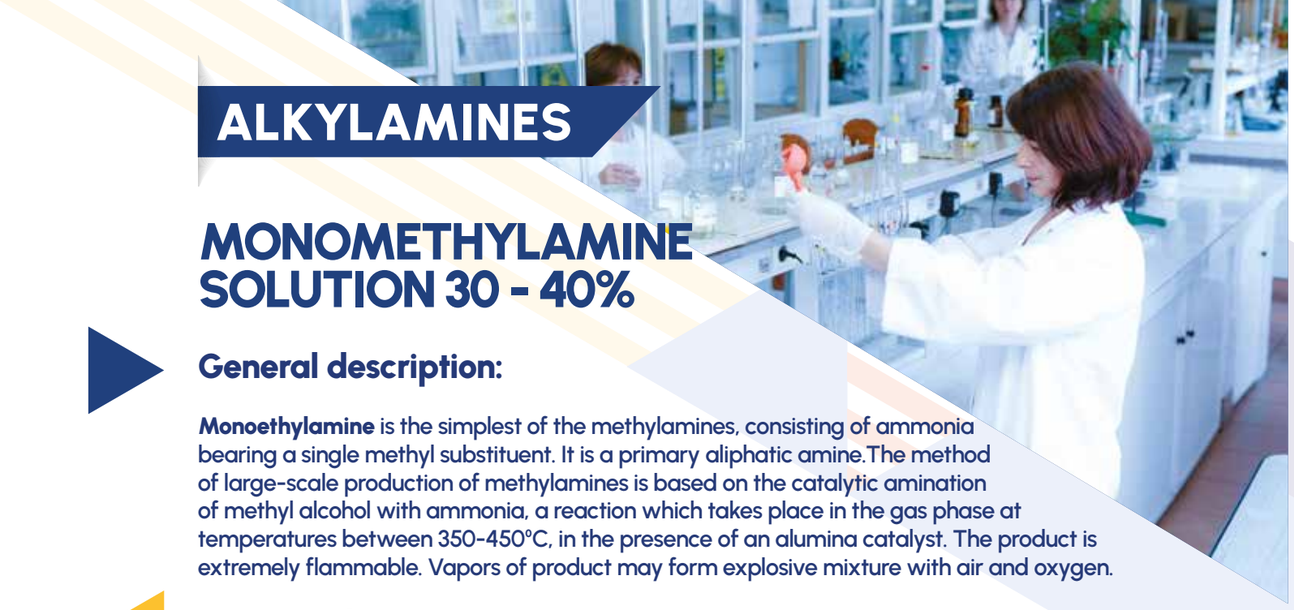
The values of specific properties are approximated, and are only for general information and are not part of the technical quality conditions.

Shipping information:

Supplier steel tanks lined with rubber or polyvinyl chloride, with a capacity of 50 tones.

Storage & handling:

It should be stored in metal reservoirs with anticorrosion inner protection, which are kept by cooling at temperatures of maximum 25°C in dry areas, away from heat and direct sunlight.
Sodium hypochlorite is an irritating product to skin, eyes and mucous membranes.
Before handling and using of product, the personnel must be aware of the dangers implied.



MONOMETHYLAMINE SOLUTION 30 - 40%

General description:

Monoethylamine is the simplest of the methylamines, consisting of ammonia bearing a single methyl substituent. It is a primary aliphatic amine.The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst. The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

· in organic synthesis for manufacturing of insecticides, solvents, drugs, anionic detergents, emulsifiers, dyes, polymers and polymerization catalysts, vulcanization accelerators, photographic substances.

Technical quality conditions:

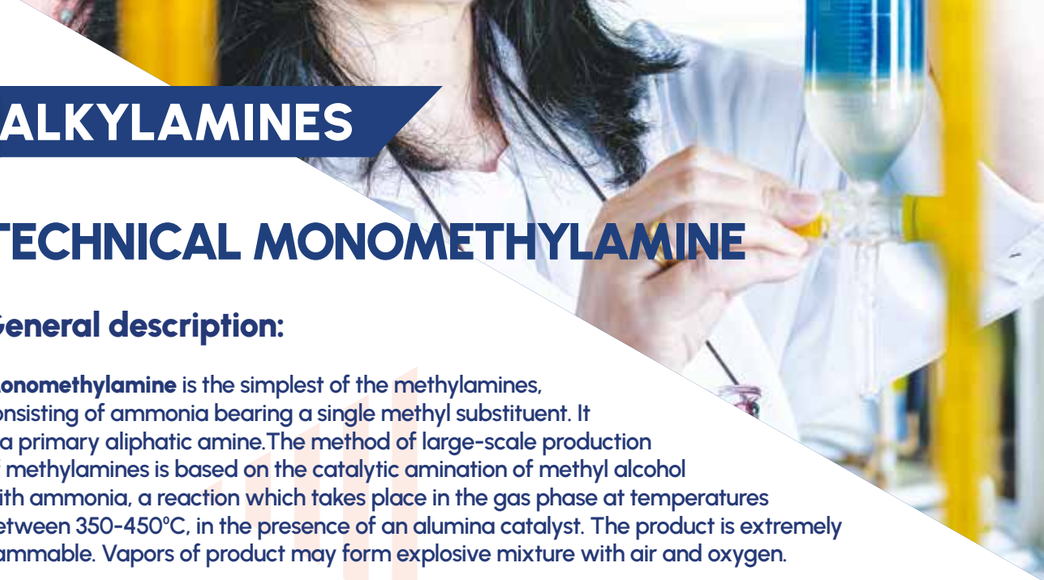
No.	Properties	U.M.	Admissibility conditions			
			Type 40		Type 60	
			Sort A	Sort B	Sort A	Sort B
1	Appearance	-	clear liquid without mechanical impurities			
2	Color	-	colorless to light yellow			
3	Di-methylamine content	%	min. 40		min. 60	
4	Total chemical impurities, of which:	%	max 0,2	max 0,32	max 0,3	max 0,48
	- ammonia	%	max 0,12	-	max 0,18	-
	- mono-methylamina	%	max 0,16	-	max 0,24	-
	- methanol	%	max 0,04	-	max 0,06	-
	- tri-methylamine	%	max 0,12	-	max 0,18	-
	- other amines	%	max 0,08	-	max 0,12	-

Shipping information:

- steel railway tanks
- road tank
- containers
- metallic barrels

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.



TECHNICAL MONOMETHYLAMINE

General description:

Monomethylamine is the simplest of the methylamines, consisting of ammonia bearing a single methyl substituent. It is a primary aliphatic amine.The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst. The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

· in organic synthesis for manufacturing of corrosion inhibitors, insecticides, fungicides, solvents, drugs, anionic detergents, emulsifiers, dyes, polymers and polymerization catalysts, vulcanization accelerators, photographic substances.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions	
			Type A	Type B
1	Monomethylamine content	-	min. 99	
2	Total chemical impurities, of which:	%	max. 1	
	- ammonia	%	max. 0,3	max. 0,3
	- water	%	max. 0,5	max. 0,7
	- methanol	%	max. 0,1	max. 0,1
	- dimethylamine	%	max. 0,5	max. 0,5
	- trimethylamine	%	max. 0,1	max. 0,1
	- other amines	%	max. 0,2	max. 0,2

Shipping information:

- steel railway tanks, pressure resistant
- containers, pressure resistant
- steel cylinders, pressure resistant

Maximum filling grade of packing is: 0.58 kg/l.

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.

DIMETHYLAMINE SOLUTION 40 - 60%

General description:

Dimethylamine is a secondary aliphatic amine that has two methyl substituents. It has a role as a metabolite and it is a member of methylamines group. The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst. The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

- in organic synthesis for manufacturing of corrosion inhibitors, insecticides, fungicides, solvents, drugs, ion exchangers, chemical fibers, polymers and polymerization catalysts, vulcanization accelerators, photographic substances;

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions			
			Type 40		Type 60	
			Sort A	Sort B	Sort A	Sort B
1	Appearance	-	clear liquid without mechanical impurities			
2	Color	-	colorless to light yellow			
3	Di-methylamine content	%	min. 40		min. 60	
4	Total chemical impurities, of which:	%	max 0,2	max 0,32	max 0,3	max 0,48
	- ammonia	%	max 0,12	-	max 0,18	-
	- mono-methylamina	%	max 0,16	-	max 0,24	-
	- methanol	%	max 0,04	-	max 0,06	-
	- tri-methylamine	%	max 0,12	-	max 0,18	-
	- other amines	%	max 0,08	-	max 0,12	-

Shipping information:

- steel railway tanks;
- road tank;
- containers;
- metallic barrels.

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.

TECHNICAL DIMETHYLAMINE

General description:

Dimethylamine is a secondary aliphatic amine where both N-substituents are methyl. It has a role as a metabolite and it is a member of methylamines group. The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst.
The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

In organic synthesis for manufacturing of corrosion inhibitors, insecticides, fungicides, solvents, drugs, ion exchangers, chemical fibers, polymers and polymerization catalysts, vulcanization accelerators, photographic substances.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions	
			Type A	Type B
1	Dimethylamine content	-	min. 99,5	min. 99,2
2	Total chemical impurities, of which:	%	max. 0,5	max. 0,8
	- ammonia	%	max. 0,3	-
	- water	%	max. 0,5	max. 0,7
	- monomethylamina	%	max. 0,4	-
	- methanol	%	max. 0,1	-
	- trimethylamine	%	max. 0,3	-
	- other amines	%	max. 0,2	-

Shipping information:

- steel railway tanks, pressure resistant.
- containers, pressure resistant. Maximum filling grade of packing is: 0.59 kg/l.

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.

TRIMETHYLAMINE 25-60% SOLUTION

General description:

Trimethylamine is a tertiary amine in which each hydrogen atom is substituted by a methyl group. It has a role as a human xenobiotic metabolite and an E. coli metabolite. The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst. The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

in organic synthesis for manufacturing of quaternary ammonium salts and choline chloride, corrosion inhibitors, emulsifiers, insecticides, fungicides, solvents, drugs, ion exchanger resins, dyes, detergents, photographic substances.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions					
			Type 25		Type 30		Type 40	
			Sort A	Sort B	Sort A	Sort B	Sort A	Sort B
1	Appearance	-	clear liquid without mechanical impurities					
2	Color		colorless to light yellow					
3	Tri-methylamine content		min. 25		min. 30		min. 40	
4	Total chemical impurities of which:	%	max. 0,125	max. 0,2	max. 0,15	max. 0,18	max. 0,2	max. 0,32
	- ammonia	%	max. 0,05	-	max. 0,05	-	max. 0,08	-
	- mono-methylamine	%	max. 0,025	-	max. 0,03	-	max. 0,04	-
	- methanol	%	max. 0,025	-	max. 0,03	-	max. 0,04	-
	- di-methylamine	%	max. 0,075	-	max. 0,09	-	max. 0,12	-
	- other amine	%	max. 0,05	-	max. 0,06	-	max. 0,08	-

Shipping information:

- steel railway tanks, pressure resistant
- containers, pressure resistant
  Maximum filling grade of packing is: 0.56 kg/l.

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.

TECHNICAL TRIMETHYLAMINE

General description:

Trimethylamine is a tertiary amine in which each hydrogen atom is substituted by a methyl group. It has a role as a human xenobiotic metabolite and an E. coli metabolite. The method of large-scale production of methylamines is based on the catalytic amination of methyl alcohol with ammonia, a reaction which takes place in the gas phase at temperatures between 350-450°C, in the presence of an alumina catalyst. The product is extremely flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

In organic synthesis for manufacturing of quaternary ammonium salts and choline chloride, corrosion inhibitors, emulsifiers, insecticides, fungicides, solvents, drugs, ion exchanger resins, dyes, detergents, photographic substances.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions	
			Type A	Type B
1	Trimethylamine content	%	min. 99,5	min. 99,2
2	Total chemical impurities, of which:	%	max. 0,5	max. 0,8
	- ammonia	%	max. 0,2	max. 0,2
	- water	%	max. 0,4	max. 0,5
	- monomethylamine	%	max. 0,1	max. 0,1
	- methanol	%	max. 0,1	max. 0,1
	- dimethylamine	%	max. 0,3	max. 0,3
	- other amines	%	max. 0,2	max. 0,2

Shipping information:

- steel railway tanks
- road tanks

Storage & handling:

The product is stored in steel cylinder and vertical pressure tanks, outside, away from heat action, connected to grounding belt; product packed in drums is stored in its original packing, in dry and clean rooms provided with ventilation; maximum recommended temperature for storage is of 40°C.

ISOPROPYLAMINE MIN. 70% SOLUTION

General description:

Isopropylamine is a clear, colorless liquid with an ammonia-like odor. The product is extremelly flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

- as corrosion inhibitor;
- in manufacturing of coloring agents, drugs, pesticides.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions		
			Special use	Type A	Type B
1	Appearance	-	clear liquid without mechanical impurities		
2	Color	-	colorless to light yellow		
3	Isopropylamine content	%	min. 70		
4	Total chemical impurities of which:	%	max. 0,21	max. 0,21	max. 0,35
	- ammonia	%	max. 0,05	max. 0,21	max. 0,21
	- acetone	%	max. 0,05	max. 0,14	max. 0,14
	- isopropylic alcohol	%	max. 0,05	max. 0,07	max. 0,07
	- di-isopropylamine	%	max. 0,05	max. 0,07	max. 0,07
	- mono-ethylamine	%	max. 0,05	max. 0,14	max. 0,14
	- other amines	%	max. 0,08	max. 0,14	max. 0,14

Shipping information:

- steel railway tanks and road tankers
- iso-containers
- special barrels
  Maximum filling grade of packing is: 0.62 kg/l/l.

Storage & handling:

The product is stored in steel cylinder and vertical pressure resistant tanks, in open space, away from heat action, connected to grounding belt; product packed in barrels is stored in its original packing, in dry, clean rooms provided with ventilation.

TECHNICAL ISOPROPYLAMINE

General description:

Isopropylamine is a clear, colorless liquid with an ammonia-like odor. The product is extremelly flammable. Vapors of product may form explosive mixture with air and oxygen.

Main application:

- as corrosion inhibitor;
- in manufacturing of coloring agents, drugs, pesticides.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions		
			Special use	Type A	Type B
1	Appearance	-	clear liquid without mechanical impurities		
2	Color	-	colorless to light yellow		
3	Isopropylamine content	%	min. 99,7	min. 99,7	min. 99,5
4	Total chemical impurities of which:	%	max. 0,3	max. 0,3	max. 0,5
	- ammonia	%	max. 0,05	max. 0,3	max. 0,3
	- acetone	%	max. 0,05	max. 0,2	max. 0,2
	- isopropylic alcohol	%	max. 0,05	max. 0,1	max. 0,1
	- water	%	max. 0,3	max. 0,3	max. 0,5
	- di-isopropylamine	%	max. 0,05	max. 0,1	max. 0,1
	- mono-ethylamine	%	max. 0,05	max. 0,2	max. 0,2
	- other amines	%	max. 0,1	max. 0,2	max. 0,2

Shipping information:

- steel railway tanks and road tankers
- iso-containers
- special barrels
  Maximum filling grade of packing is: 0.62 kg/l/l..

Storage & handling:

The product is stored in steel cylinder and vertical pressure resistant tanks, in open space, away from heat action, connected to grounding belt; product packed in barrels is stored in its original packing, in dry, clean rooms provided with ventilation.

LIQUID CALCIUM CHLORIDE 34 - 35%- SOLUTION

General description:

It is a calcium salt with hydrochloric acid, having the chemical formula $CaCl_2$, which is characterized by an increased absorption of moisture.

Main application:

- in chemical industry;
- in paper industry;
- in freezing technique;
- in nonferrous metallurgy;
- in construction and exploitation of roads;
- as drying agent for gases and liquids;
- for dust control on roads, sport grounds, and in mining industry;
- in transportation and storage of ores in winter time;
- in pharmaceutical industry;
- as addition to drilling mud.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions	
			Type 35	Type 34
1	Appereance	-	clear to weak opalescent liquid	
2	Color	-	colorless to yellowish or grey	
3	Calcium chlorine content	%	max. 0,35	min. 34
4	Water insoluble substance content	%	max. 0,1	-
5	Iron content	%	max. 0,01	-
6	Alkaline and Mg chlorides content (expressed as NaCl)	%	max. 0,5	-
7	Sulphates content (SO_4)	-	missing	missing
8	Chlorates content (ClO_3)	-	missing	missing
9	Acidity	-	missing	missing

Shipping information:

- railway tank, road tanker;
- in containers compatible with the product, stored on a wooden pallet - eco- bulk, ADR approved;
- other compatible containers (drums) that provide quantitative and qualitative integrity of the product.

Storage & handling:

The product is stored and kept in its original package (airtight closed) in clean and dry warehouses away from humidity, direct action of eating sources and incompatible substances; calcium chloride is a hygroscopic product.

CALCIUM CHLORIDE FOOD GRADE

General description:

It is a calcium salt with hydrochloric acid, having the chemical formula CaCl2, which is characterized by an increased absorption of moisture.

Main application:

- food additive;
- processing agent (e.g. cheese industry to correct calcium levels in milk);
- pickles-preventing agent used for soaking, fermentation and rot;
- acidity regulator - increases the firmness of fruits and vegetables;
- flavor enhancer;
- supplements nutrients (such as calcium source);
- anti-microbial agent;
- anti-mold agent;
- in beer and soft drinks industry as water hardness regulator and as agent for lowering alkalinity and pH adjustment.

Technical quality conditions:

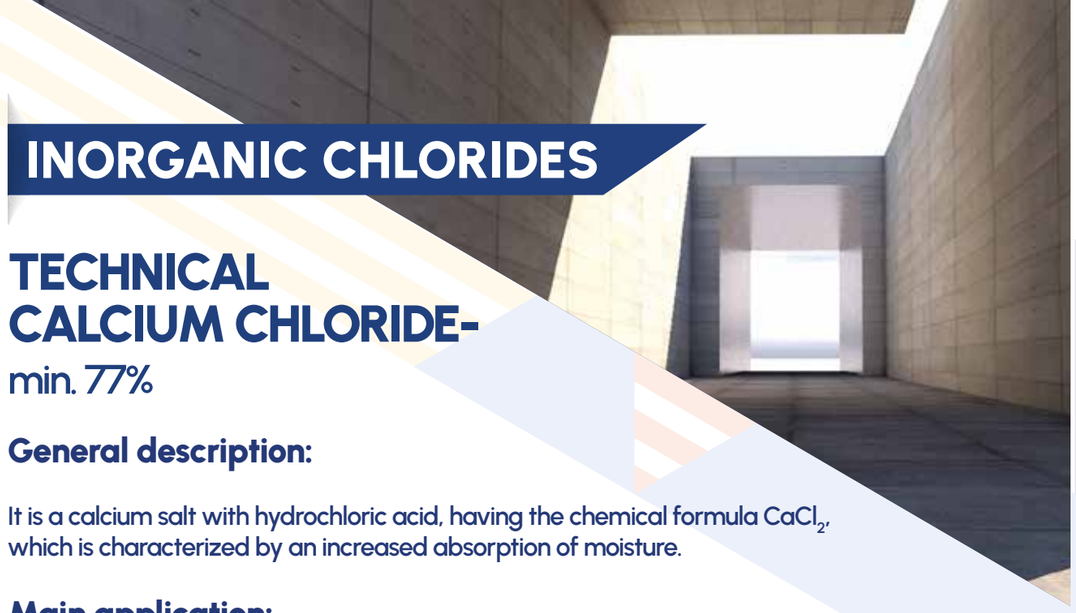
No.	Properties		U.M.	Admissibility conditions
1	Appereance		-	dust/dust snd irregular granules
2	Calcium chloride content:	expressed as $CaCl_2$	%	min. 77
		expressed as $CaCl_2 \times 2 H_2O$	%	min. 102
3	Alkalinity expressed as $Ca(OH)_2$		%	max. 0,3
4	Alkaline and magnesium salt content		%	mx. 4
5	Acid-insoluble substances content		%	max. 0,02
6	Acid-insoluble particle size (sample of 1 kg)		mm	max. 2
7	Sulphates content (SO_4^{2-})		%	max. 0,05
8	Iron content (Fe)		mg/kg	max. 10
9	Arsenic content (As)		mg/kg	max. 3
10	Mercury content (Hg)		mg/kg	max. 1
11	Lead content (Pb):		mg/kg	max. 2
12	Fluorides content (F-)		%	max. 0,004

Shipping information:

- in polypropylene bags having 25 kg net weight;
- in big-bags having 1000 kg net weight.

Storage & handling:

The product is stored and kept in its original package (airtight closed) in clean and dry warehouses away from humidity, direct action of heating sources and incompatible substances; calcium chloride is a hygroscopic product.



INORGANIC CHLORIDES

TECHNICAL CALCIUM CHLORIDE-
min. 77%

General description:

It is a calcium salt with hydrochloric acid, having the chemical formula $CaCl_2$, which is characterized by an increased absorption of moisture.

Main application:

- in chemical industry;
- in paper industry;
- in freezing technique;
- in constructions as concrete accelerator;
- in nonferrous metallurgy;
- in construction and exploitation of roads;
- as drying agent for gases and liquids,
- for dust control on roads, sport grounds, and in mining industry,
- to struggle against glazed frost, ice and snow on roads,
- in the oil extraction industry.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions	
			Type A	Type B
1	Appearance	-	dust/dust and irregular granules	
2	Calcium chloride content (expressed as $CaCl_2$)	%	min. 90	min. 77
3	Alkaline and magnesium chlorides content expressed as sodium chloride	%	max. 4	max. 4
4	Water-insoluble substances content	%	max. 0,25	max. 0,25
5	Sulphates (SO_4) content	%	max. 0,2	max. 0,2

Shipping information:

- in polypropylene bags having 25 kg net weight;
- in big-bags having 1000 kg net weight.

Storage & handling:

The product is stored and kept in its original package (airtight closed) in clean and dry warehouses away from humidity, direct action of heating sources and incompatible substances; calcium chloride is a hygroscopic product.

INORGANIC CHLORIDES

CHLORIDE OF LIME

General description:

Chloride of lime (calcium hypochlorite - active substance) is a calcium salt and acts as a bleaching agent. It is a white to light gray or yellowish-white powder with small lumps.

Main application:

- disinfection and treatment of drinking water for both humans and animals;
- for veterinary hygiene purposes;
- disinfectants and algaecides which are not intended for direct application to humans.

Technical quality conditions:

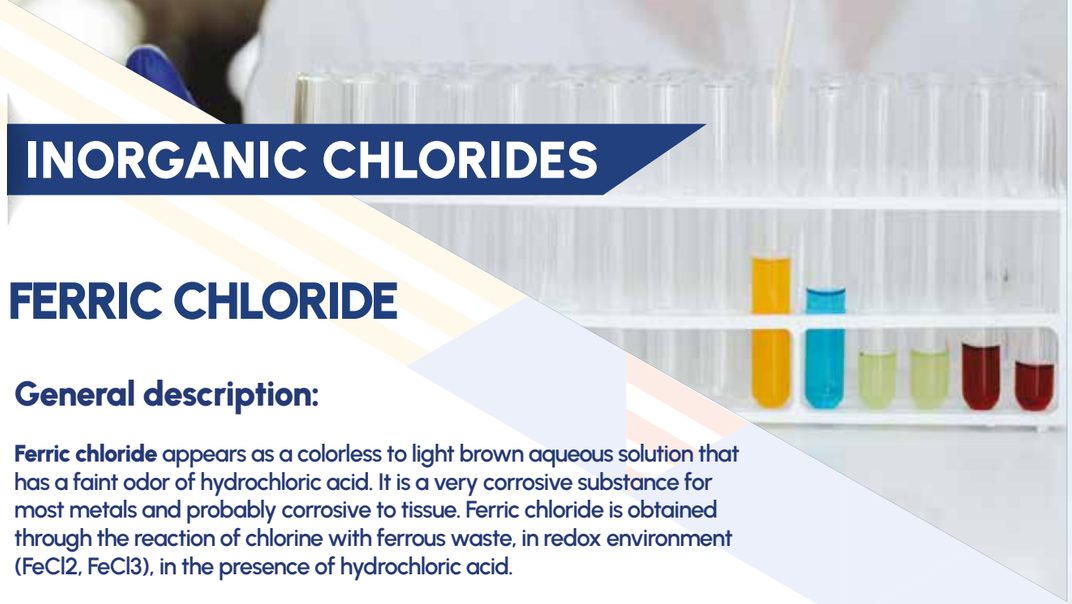
No.	Properties	U.M.	Admissibility conditions	
			Type I	Type II
1	Appearance	-	white to light gray powder	
2	Active chlorine content	%	min. 30	min. 26

Shipping information:

25 kg or/and 30 kg net weight polyethylene bags with valve, inserted in sewed polypropylene bags.

Storage & handling:

The product is stored and kept in its original package, airtight closed, in clean, dry, covered, proper ventilated warehouses, away from humidity, direct heat sources and incompatible substances. The temperature in the storage areas is recommended not to exceed 25°C.
The package integrity and the right temperature during transportation and storage ensure product stability.



INORGANIC CHLORIDES

FERRIC CHLORIDE

General description:

Ferric chloride appears as a colorless to light brown aqueous solution that has a faint odor of hydrochloric acid. It is a very corrosive substance for most metals and probably corrosive to tissue. Ferric chloride is obtained through the reaction of chlorine with ferrous waste, in redox environment (FeCl2, FeCl3), in the presence of hydrochloric acid.

Main application:

- as coagulant agent for industrial and drinking water purification;
- in pharmaceutical industry;
- as an oxidizing agent in chemical industry;
- in electronics.

Technical quality conditions:

No.	Properties	U.M.	Admissibility conditions
1	Appearance	-	brown-reddish liquid
2	Relative density at 20°C	-	min. 1,42
3	Ferric chloride content	%	min. 40
4	Iron content (Fe2+)	%	max. 0,5
5	Free acidity (expressed as HCl)	%	max. 1

Shipping information:

In drums/barrels/eco-bulks/large packaging made of appropriate material, ADR approved, that ensures the quantitative and qualitative integrity of the product.

Storage & handling:

In anti-corrosion protected tanks or in its original package, tight sealed; storage areas must be proper ventilated, away from heating sources (maximum recommended temperature being +30°C), humidity and bad weather for long-term storage at temperatures below -15°C it is possible to deposit crystals; crystals can dissolve by raising the solution temperature at about 25°C; it is recommended to stir the solution if possible.

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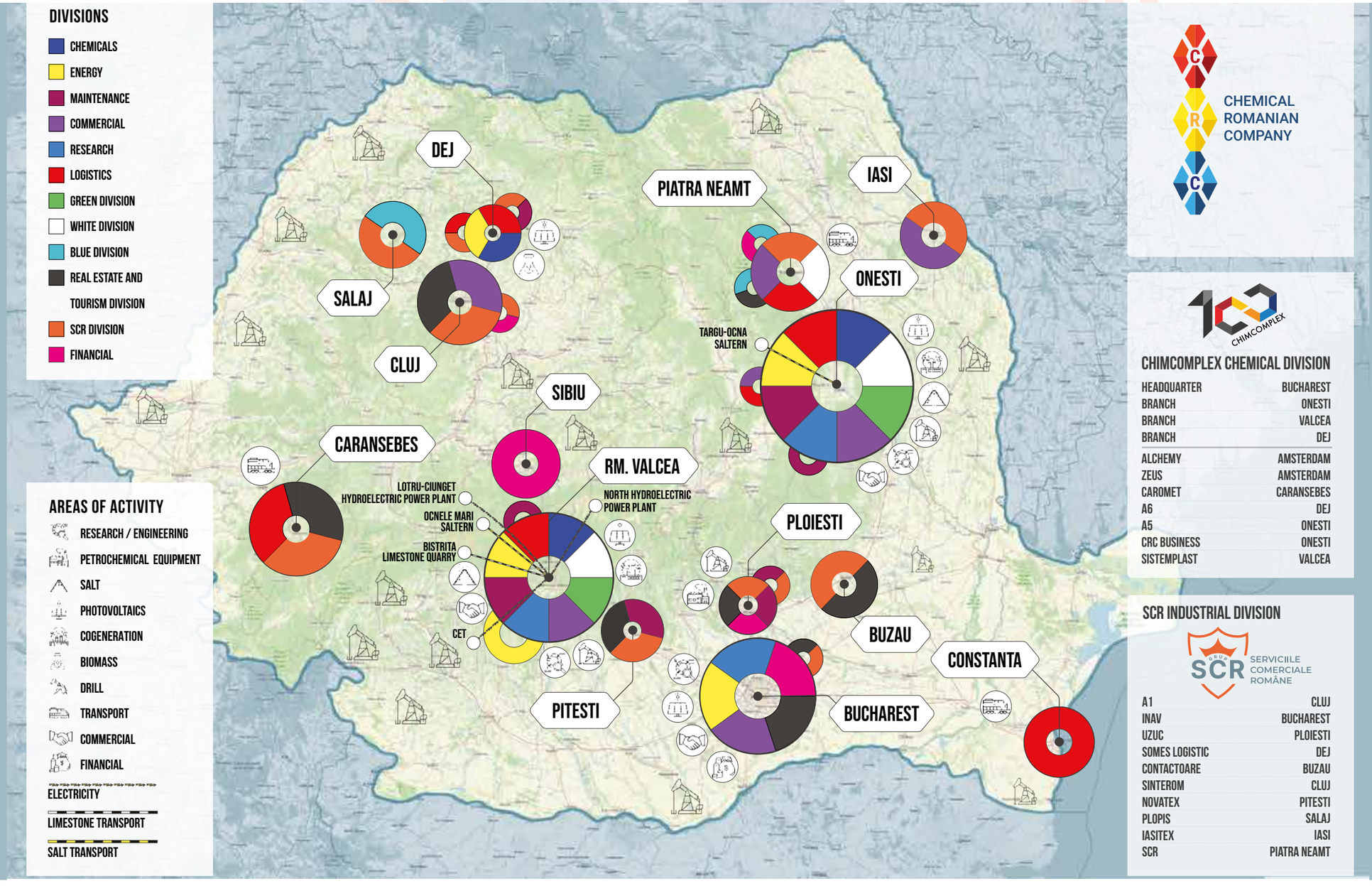

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