

**SIMONA**



# SIMONA® Industrial Piping Systems

Superior Reliability in Extreme Conditions

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Put your trust in quality and expertise



When it comes to industrial piping systems, two factors are essential to success: premium-quality pipes and fittings that meet your application-specific requirements and a high-calibre partner who can assist you with everything from product selection to on-site project planning.

SIMONA offers you the best of both worlds – premium quality and unrivalled expertise.

## Benefit from our passion and commitment – Welcome to SIMONA



**Behind each product associated with our company stands a dedicated team that has developed and manufactured it. SIMONA draws its inspiration from the unparalleled vision, dedication and passion of its employees – and a history spanning more than 150 years.**

**Today, we are recognised as one of the world's leading producers of semi-finished thermoplastics.**

### **Products tailored to your needs**

SIMONA is able to offer you the most extensive range of semi-finished thermoplastics worldwide. Our comprehensive portfolio of products encompasses pipes, fittings, valves, sheets, rods, profiles, welding rods and finished parts for a diverse range of applications. The materials offered within this area span everything from PE and PP to PVC, PVDF, E-CTFE and PETG. On request, we can also develop customised products tailored to your specific requirements.

### Best-in-class quality

Our products and services are designed to deliver the very best quality imaginable. When implementing your projects, we always place the greatest possible emphasis on professionalism during every stage of the process. We are supported in our efforts by a first-class Quality Management system – for total peace of mind.

### Global sales network

Boasting a global network of subsidiaries and distribution partners, SIMONA is renowned as a fast, flexible and reliable partner. We look forward to assisting you.

### Exceptional service

As a customer, you always take centre stage: from project development to materials procurement and on-site planning, we are committed to providing the very best consulting services. In addition, we will supply you with the full range of documentation accompanying our products and offer specialist training where required.



*SIMONA AG's Quality and Environmental Management system is certified in accordance with DIN EN ISO 9001 : 2008 and DIN EN ISO 14001 : 2005.*

*The Quality Management system of SIMONA AG in compliance with the Pressure Equipment Directive is certified to 97/23/EC Annex I, para. 4.3.*





## Safe, robust and reliable – SIMONA® industrial piping systems made of plastic



*State-of-the-art injection moulding system for fittings*

**SIMONA® piping systems are all about ensuring maximum workflow at industrial plants, with high-performance plastic pipelines transporting chemicals, granular substances, powders, water or pressurised air safely and reliably to the required destination.**

The outstanding versatility of SIMONA® products is illustrated by the host of industrial applications to which they can be applied. Corrosion resistance, low weight and chemical resistance provide tangible advantages compared to conventional materials. The product portfolio offered by SIMONA within the area of engineered plastics is close to unparalleled. What is more, we are committed to developing solutions tailored precisely to your individual requirements, while always ensuring that each product delivers superior value from a commercial perspective.

As one of the few manufacturers within the global arena, SIMONA is able to offer complete plastic piping systems from a single source. The benefits are plain to see: streamlined purchasing activities and total peace of mind when it comes to product compatibility. PE, PP, PVDF and E-CTFE can be used for virtually any field of application – from air-conditioning and ventilation systems to water treatment and chemical engineering.



*SIMONA products are regularly tested by internal units and independent bodies.*

### **Play it safe with SIMONA**

Our products are subjected to a range of thorough technical assessments as well as endurance testing. As part of this programme, our in-house laboratory conducts regular tests on material properties and long-term performance. These in-depth evaluations provide essential data for our R&D engineers to fine-tune SIMONA products where necessary. Committed to this approach of continuous improvement, we are thus able to supply innovative, premium-quality products at all times.

In contrast to traditional materials used within this area, plastics also offer greater certainty in terms of planning and expenditure. Thus, the above-average performance of plastic pipes is maintained over the extended useful life of the piping system:

- Creep strength
- Stability and flexibility (creep modulus)
- Notch and crack resistance
- Abrasion resistance
- Corrosion resistance

### **Superior performance even in tough conditions**

SIMONA® industrial piping systems have an exceptional track record when it comes to handling aggressive substances. The materials PE, PP, PVDF and E-CTFE are resistant to a wide range of chemicals, and their very high impact strength provides more operational scope with regard to installation and media handling. What is more, plastic pipes are insusceptible to corrosion, making them the perfect transport system for fluids and hazardous applications.

We look forward to passing on our in-depth knowledge within this area – spanning more than 1000 different substances. Our specialist engineering team at SIMONA's Technical Service Centre looks forward to advising you.

You will find our entire spectrum of knowledge on SIMCHEM 6.0 – our CD-ROM for chemical resistance.

### **Customised solutions**

At SIMONA, customising extends far beyond the supply of tailor-made lengths, colours and dimensions:

- We can develop new or modified materials in close cooperation with our customers.
- We are able to design and manufacture customised fittings for specialist applications.

SIMONA is committed to providing an extensive range of customised solutions so that you can compete successfully within the business arena.









## Solutions tailored to any application

Operating as a one-stop supplier, SIMONA is the global technology leader within the field of semi-finished products, pipes and finished parts.

Thanks to the diversity, quality and sheer breadth of our product range, we are able to deliver perfect solutions for virtually any application.

## SIMONA® piping systems for HVAC technology

Clean air and a comfortable room climate are key contributors to people's general well-being and quality of life. SIMONA has an extensive portfolio of pipes and fittings for industrial ventilation and air-conditioning systems, ranging from low-flammability PPs to electrically conductive PE-EL, PP-EL, PP-EL-s and PVDF-EL. The key advantage of ventilation systems featuring plastic components is that they are light and easy to install. What is more, they are extremely versatile and can thus be adapted to virtually any application within your operating environment.



### Safe collection of chemical gases

The **BioInstrumentation Center in Jena/Germany** is acclaimed for its biochemical innovations. Here, start-up companies are given the opportunity to develop and implement their ideas under professional laboratory conditions. **Schmidhammer Luft- und Klimatechnik GmbH** installed a sophisticated exhaust air system at the facility, featuring **SIMONA® PPs** pipes and fittings. The low-flammability polypropylene used within this area offers excellent chemical resistance and can be deployed at high temperatures.

#### Acid-resistant ventilation system

Based in the Swiss town of Rotkreuz, **Rust + Meier Kunststoffprodukte AG** were awarded the contract to install a ventilation system in the newly established chemical laboratory of the vocational training centre of the City of Lucerne. The company opted for **SIMONA® PPs** pipes and fittings (dia. = 90–400 mm), the low-flammability polypropylene being the perfect choice. Combining high acid resistance with an excellent fire rating, this material is extremely well suited to applications within the area of exhaust gas ventilation.



#### New exhaust gas treatment system

**IKS Kunststoff- und Stahlverarbeitungs GmbH** installed an over-ground piping system at the corporate headquarters and central production facility of pharmaceutical company **Boehringer Ingelheim**. A **SIMONA® PE-EL** piping system that is 700 metres in length collects the exhaust air generated during production. Around 30,000 m<sup>3</sup> of exhaust air per hour are transported to a dedicated treatment unit. Made of a special polyethylene, the pipes dissipate static charges and prevent sparking. The result: a highly reliable exhaust treatment system.



## SIMONA® piping systems made of polypropylene – combining rigidity with high-temperature performance

Compared to PE, polypropylene (PP) offers increased stiffness, especially in the upper temperature range (up to +100 °C). Among its key characteristics are high chemical resistance and favourable results in long-term testing when exposed to a range of media, even at high temperatures.

Owing to their low flammability PPs and PP-EL-s offer protection in the event of fire. In combination with electrical conductivity PP-EL-s is the perfect explosion prevention.



## Properties

### PP

- Extreme toughness
- Excellent chemical resistance to many acids, alkalis and solvents
- Superior stress crack resistance
- Reliable protection against corrosion
- Low stress potential due to reduced residual stress
- Fine and stable crystalline structure
- Excellent welding properties due to fine, thermodynamically stable structure

### PPs

- Properties of PP, plus low flammability as per DIN 4102 B1

### PP-EL-s

- Properties of PP, plus electrical conductivity (as per ATEX)
- Plus low flammability as per UL 94 V-0

Material specifications	Standards/guidelines	PP-H AlphaPlus®	PPs	PP-EL-s
Density, g/cm <sup>3</sup>	ISO 1183	0.915	0.950	1.160
Yield stress, MPa	DIN EN ISO 527	33	32	25
Elongation at yield, %	DIN EN ISO 527	8	8	7
Elongation at break, %	DIN EN ISO 527	80	100	40
Tensile modulus of elasticity, MPa	DIN EN ISO 527	1700	1600	1400
Impact strength, kJ/m <sup>2</sup>	DIN EN ISO 179	no break	no break	no break
Notched impact strength, kJ/m <sup>2</sup>	DIN EN ISO 179	9	6	5
Ball indentation hardness, MPa	DIN EN ISO 2039-1	70	70	66
Shore hardness, D	ISO 868	72	72	70
Mean coefficient of linear thermal expansion, K <sup>-1</sup>	DIN 53752	1.6 · 10 <sup>-4</sup>	1.6 · 10 <sup>-4</sup>	1.6 · 10 <sup>-4</sup>
Thermal conductivity, W/m · K	DIN 52612	0.22	0.22	–
Dielectric strength, kV/mm	VDE 0303-21	52	22	–
Surface resist., Ohm	DIN IEC 167	10 <sup>14</sup>	10 <sup>14</sup>	< 10 <sup>6</sup>
Combustibility	DIN 4102	B2	B1	low flammability <sup>①</sup>
Physiologically safe	as per BgVV	ja	no	no
Chemical resistance	according to DIN 8075 Supplement	fulfilled	fulfilled	fulfilled
Temperature range, °C		0 to +100	0 to +100	+5 to +100

<sup>①</sup> UL 94 V-0



## PPs Pipe

### Material

Low-flammability PP

### Colour

Grey

### Dimensions

Standard length: 5 m

### Note

Other lengths on request

### Standards

as per DIN 4102 B1

### Ventilation series

d mm	e mm						
32	3.0						
40	3.0						
50	3.0						
63	3.0						
75	3.0						
90	3.0						
110	3.0						
125	3.0						
140	3.0						
160	3.0						
180	3.0						
200	3.0						
225	3.5						
250	3.5						
280	4.0						
315	5.0						
355	5.0						
400	6.0						
450	7.0						
500	8.0						
560	8.0						
630	10.0						

## PPs Fittings

Diameter in mm

### Ventilation series

#### PPs fittings for ventilation pipes

Bends 90°, 60°, 45°, 30° with sockets	50 – 800		
Sockets	50 – 800		
Tees with sockets	50 – 800		
Reducers concentric with sockets	75/50 – 800/710		
Butterfly valves	50 – 400		
End caps with sockets	50 – 400		
Flange adaptors with sockets	50 – 400		
Spherical sleeves	50 – 400		
Exhaust air diffuser with sockets	110 – 400		





## PP-EL-s Pipes

### Material

PP electrically conductive,  
flame retardant

### Colour

Black

### Dimensions

Standard length: 5 m

### Note

Non-standard lengths on request

### Ventilation series

d mm	e mm						
75	3.0						
90	3.0						
110	3.0						
125	3.0						
160	3.0						
180	3.0						
200	3.0						
250	3.5						
280	4.0						
315	5.0						
400	6.0						
500	8.0						



# Services

As a customer, you always take centre stage: from project development to materials procurement and on-site planning, we are committed to providing the very best consulting services.

Our long-standing experience is your gain.



## Consulting and information service



**We have channelled considerable resources into technical consulting and would be delighted to share our know-how with you. We offer global consulting services, headed by highly qualified staff at our Technical Sales Support unit and within our field sales organisation – from project planning and product selection to on-site assistance tailored to your applications.**

### **Project planning**

We advise project planners and contractors on the selection of suitable materials and products as well as on the most efficient methods of installation. It would be a great pleasure for us to assist you in addressing all technical issues related to your specific project, e.g. pipe-laying installation, structural calculations or joining technology.

#### **SUPPORT**

**+49 (0) 67 52 14-315**  
[pipingsystems@simona.de](mailto:pipingsystems@simona.de)



### On-site consulting

We are happy to provide active support at all stages of your project. Our qualified engineers will assist you on site throughout your construction project and also advise you on technical matters subsequent to completion.

### Training

We also offer a range of training courses and seminars for customer personnel – organised at your premises or at our Technology Centre in Kirn.

### Reliability and flexible service

Our central warehouse and global distribution centres supply SIMONA standard products from stock, thus guaranteeing speedy and flexible delivery.

### Standard tendering documents

To view standard tendering documents for our products, please refer to our SIMONA® SIMCAT CD-ROM or visit our website at [www.simona.de](http://www.simona.de).

### Information service

Further information is available in the form of

- Brochures
- Product information leaflets
- CD-ROMs

*Our full product range for pipes, fittings and valves is listed in our Gross Price List (print version) and on the Internet at [www.simona.de](http://www.simona.de)*



### INFO

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## Technical services



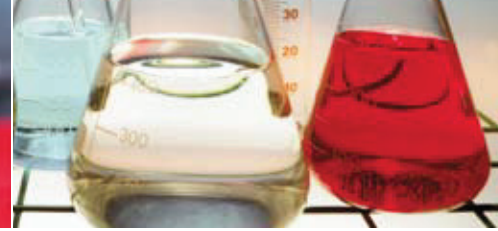
**Our products are subjected to a range of thorough technical assessments as well as endurance testing. As part of this programme, our in-house laboratory conducts regular tests on material properties and long-term performance.**

**We are happy to pass on our knowledge, as well as performing specialist tests on your behalf.**

### **Materials testing**

- Immersion tests according to DIN 16888 Part 1–2 and ISO 4433 Part 1–4
- Evaluation of reduction factors through immersion tests or creep-depending-on-time tests under internal compression
- Probability analysis regarding stress cracks induced by liquids
- Assessment of permeation for applications in composite construction and lining technology with corresponding material recommendation





### Equipment and accessories

We are able to supply you with specialist equipment and accessories required for professional welding and processing, such as welding machines for electrofusion or heated element butt welding as well as tensioning devices and other processing machinery. Specialist equipment can be either purchased or hired.

### Structural analysis

We perform structural calculations in the following areas:

- Underground pipe installation
- Ventilation piping systems

### ATEX advisory service

- Selection of materials
- Details relating to standards and regulations
- Information on processing of electrically conductive products

### Customised pipes and fittings

Alongside our standard product range, we offer a premium-class package of specialist solutions:

- Pipes in various lengths for a range of joining methods
- Special pipe sizes adapted to the standard nominal diameters of other materials
- Pipes with non-standard properties such as electrical conductivity or low flammability
- Customised fittings as system components for your application

#### SUPPORT

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# SIMONA® SIMCHEM

## **SIMCHEM 6.0 – Chemical resistance data on CD-ROM**

**SIMCHEM 6.0 is a reliable and comprehensive guide when it comes to determining the chemical resistance of materials used in our products.**

**It lists more than 3,000 media and proprietary products. Additionally, SIMCHEM provides extensive information about our products and materials, as well as outlining SIMONA's business activities.**



*SIMCHEM – An extensive database on the chemical resistance of SIMONA® materials, featuring more than 3,000 listed substances.*

The sixth edition of SIMCHEM has been fully reviewed and is an important guide for your day-to-day operations. Please be advised that all data presented in this version reflects our scope of knowledge at the point of publication. The latest version of SIMCHEM is based on findings from immersion testing as part of which test specimens were subjected to different temperatures in the medium in question, free from external stresses.

The data derived from testing is complemented by case study reports, recommendations by raw material manufacturers as well as extensive data relating to standards, directives and guidelines.

**ORDER SIMCHEM 6.0**

**+49 (0) 67 52 14-383**  
marketing@simona.de

# Information on ATEX and REACH

## ATEX-compliant products for explosive atmospheres

Materials used in production equipment which is deployed in potentially explosive atmospheres must display properties that protect them against explosion, in compliance with European directives ATEX 94/9/EG and ATEX 137. SIMONA's electrically conductive products provide protection against static charging, thereby reducing the risk of explosion. SIMONA offers professional assistance in applications technology as well as training centred around the processing of SIMONA® EL products.

## REACH Regulation

On June 1, 2007, the European chemicals law which had applied up to that date was replaced by the so-called REACH Regulation (EU Regulation 1907/2006/EC). REACH stands for **R**egistration, **E**valuation, **A**uthorisation and **R**estriction of **C**hemicals.

One of the rules specified by the REACH Regulation is that all substances (chemicals and preparations) which are manufactured in the EU or are imported to the EU have to be pre-registered and registered with the European Chemicals Agency (ECHA). The REACH Regulation applies to chemicals and preparations. Polymers are explicitly excluded from registration and evaluation (as per Article 2 Para. 9).

The SIMONA® range of products comprises semifinished parts, pipes and fittings which are made solely of polymer materials. Therefore, they are not subject to the REACH Regulation. As a plastics processing company, we cannot have our products registered, nor are we obliged to.

Within the scope of the supply chain described by REACH, plastics processing companies are so-called "downstream users". One of our obligations as downstream users is to verify the fact that our own suppliers handle the raw materials delivered to us in a REACH-compliant manner. We met our obligations within this area during the pre-registration phase from

1.6. - 30.11.2008. If the availability of individual raw materials is limited by REACH in future, we will switch to REACH-compliant alternatives.

In addition, we are obliged to disclose information about the constituents of our products: we confirm that our products do not contain any substances in concentrations of > 0.1% (w/w) which are on the candidate list (Candidate List of Substances of **Very High Concern**, SVHC) issued by the European Chemicals Agency (ECHA).

As downstream users, we are enjoined to inform our suppliers how the raw materials delivered to us are used (in our case: manufacture of semi-finished plastics, pipes, fittings and finished products by means of extrusion, pressing and injection moulding) so that the use becomes a so-called "identified use". In order to improve the exchange of information along the supply chain, it is advantageous to also receive information about how our customers subject our products to further processing. Please feel free to pass this information on to us by contacting us at [reach@simona.de](mailto:reach@simona.de).

You can find more information and help on the topic at: <http://www.reach-helpdesk.de/>

## SUPPORT

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# SIMONA worldwide

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