

# URETEC S.p.A

Tecnologia dei Poliuretani

## COMPANY PROFILE



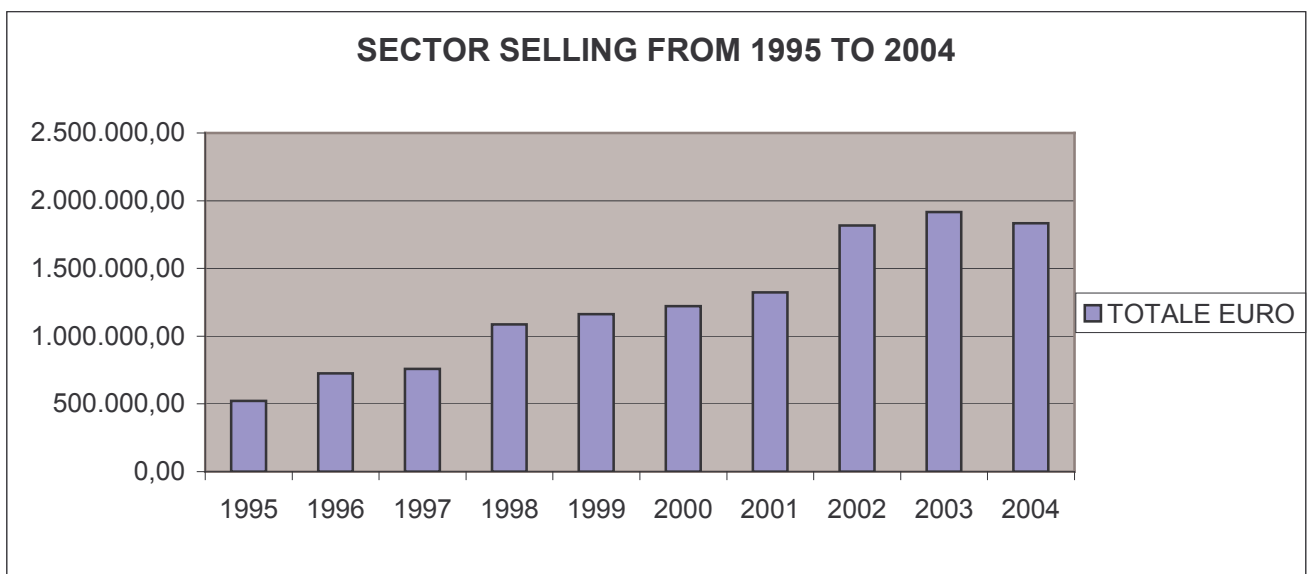
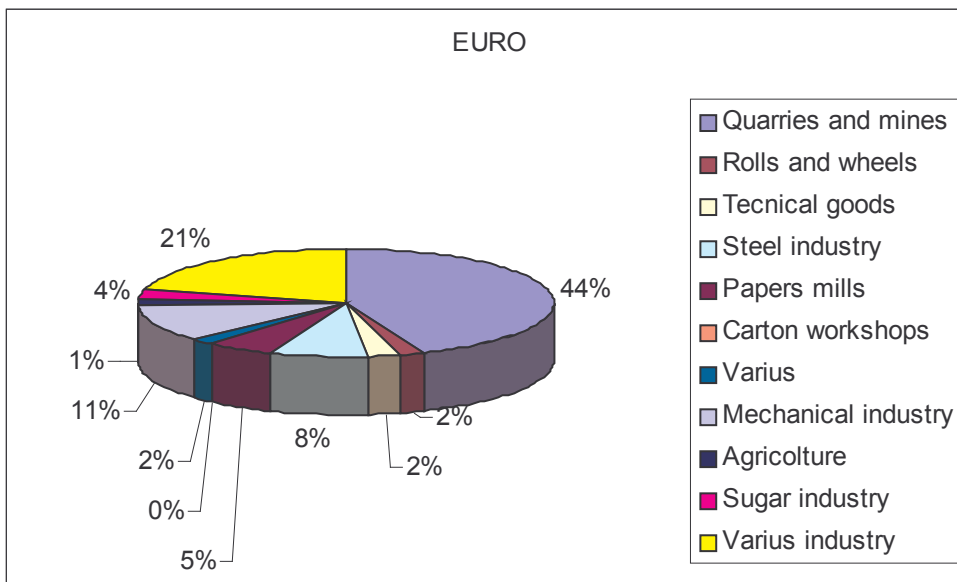
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Tecnologia dei poliuretani  
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The URETEC S.p.A. established in 1994 to produce casting MDI parts for different industry applications. The company was born between Sicma S.p.A., producer of handling equipment for paper industry and two other partners that had previous experience of five years in casting MDI production for screening in quarries and mines.

Thanks to the intrinsic features of polyurethanes, which allows many executions in different sectors.

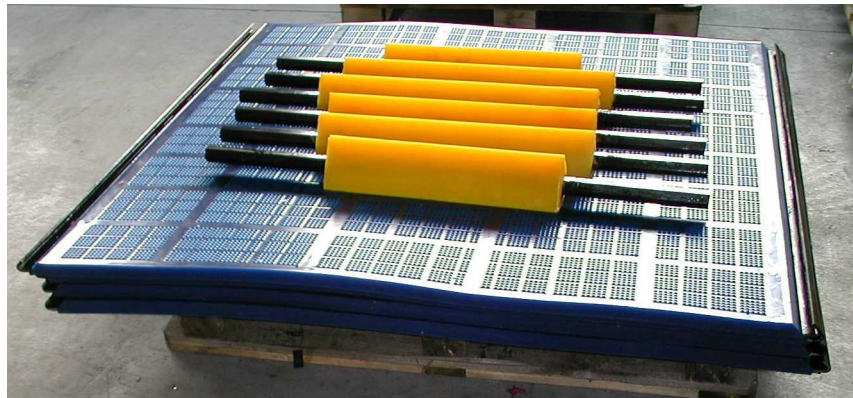
In the following diagram we have the state of business, in the last year, for different area markets.



The main applications are:

## QUARRIES AND MINES

- Modular system
- Side tensioned screens



- Cones
- Scrapers
- Resistable sheets

## PAPER MILLS

- Cyclone
- No-crush rolls



**MECHANICAL INDUSTRY**

- Rolls
- Wheels



**STEEL-WORK INDUSTRY**

- Rolls
- Wheels
- Shock absorber rolls



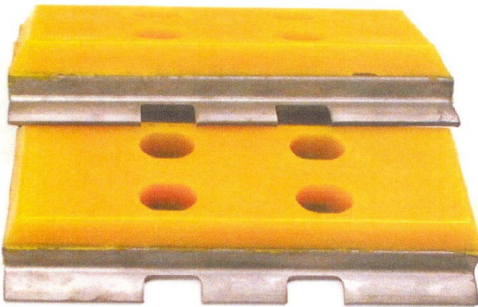
**AGRICULTURE**

- Rolls
- Coated rollers



## VARIOUS INDUSTRY

- Coated rollers
- Sheets
- Hollow and solid cylinders
- Silencers for pneumatic drill



## THE MATERIAL

The casting machinery and chemical components are supplied by the French company BAULE SAS

MDI actually produce from URETEC S.p.A. a QUASI-MDI-ester and MDI-eter

The processing at 45°, of the three components, allows elastomers with hardness from 55 to 95 Shore A. The polyurethane MDQ is a top quality goods thanks to its elastomer properties: elasticity, resistance to compression, abrasion, tear strength and resistance to chemical components.

High resistance to oxygen, ozone, solar light and ageing.

The MDQ is a material that adds the advantages of natural and synthetic rubber, elasticity, with traditional plastic for example hardness and abrasion resistance.

## MDQ 23165 + D20 + BDO (SD5 catalyst)

PREPOLYMER		MDQ 23165											
CHAIN EXTENDER		D20 + BDO (SD5 catalyst)											
		PROCESSING											
	Unit	220	180	160	140	120	100	80	60	40			
D13 parts per 100 parts of MGQ 32140													
BDO parts per 100 parts of MGQ 32140		7.65	9.45	10.35	11.25	12.15	13.05	13.95	14.75	15.75			
SD5 % / total (by weight) (catalyst at the head)		0.1	0.22	0.26	0.31	0.37	0.43	0.51	0.61	0.72			
Recommended temperature of the moulds	°C	80	80	80	80	80	80	80	80	80			
Pot life (on a 400 g mixture) **	min	12'	10.30'	8.30'	7.30'	6'	5	3.30'	2.45'	1.55'			
Demoulding time	min	40'	30'	30'	18'	18'	15'	15'	10'	5'			
Minimum cure time / Temperature		18 - 80	18 - 80	18 - 80	18 - 80	18 - 80	18 - 80	18 - 80	18 - 80	18 - 80			
• Normal static properties		72 - 80	72 - 80	72 - 80	72 - 80	72 - 80	72 - 80	72 - 80	72 - 80	72 - 80			
• Optimal dynamic properties													
<b>TYPICAL ELASTOMER PROPERTIES</b>													
<b>Hardness at 20°C</b>	<b>Shore A</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>			
10 % Modulus	DIN 53504 MPa	0.5	0.7	0.7	0.8	1.0	1.7	2.5	3.5	6.5			
100 % Modulus	DIN 53504 MPa	1.6	2.4	2.7	3.1	3.8	5.5	7.3	8.8	13.6			
200 % Modulus	DIN 53504 MPa	2.0	3.3	3.8	4.4	5.5	7.7	10.1	11.9	17.8			
300 % Modulus	DIN 53504 MPa	2.3	4.6	5.2	6.0	7.6	10.7	13.8	16.0	23.5			
Tensile strength	DIN 53504 MPa	18	26	32	31	35	41	38	38	38			
Elongation at break	DIN 53504 %	650	545	555	550	560	525	535	555	515			
Tear strength : without nick	DIN 53515 kN/m	34	52	62	67	82	95	110	126	150			
Tear strength : with nick	DIN 53515 kN/m	28	31	32	33	34	45	48	65	89			
Resilience	DIN 53512 %	55	47	46	46	44	44	43	40	37			
Abrasion loss	DIN 53516 mm <sup>3</sup>	15	24	22	22	21	19	21	31	50			
Compression set (*)	DIN 53517 %	11	12	15	15	17	19	18	21	26			
Hardness at - 5°C	DIN 53505 Shore A	57	62	67	72	77	83	87	93	96			
Hardness at + 80°C	DIN 53505 Shore A	52	58	63	68	73	78	82	88	92			
Specific gravity		1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21			

(\*) 25 % deflexion 22 hours at 70°C

\*\* Possibility to shorten or lengthen the pot life by increasing or decreasing the catalyst quantity



# MGQ 32140 + D13 + BDO (SD5 catalyst)

PREPOLYMER		MGQ 32140										
CHAIN EXTENDER		D13 + BDO (SD5 catalyst)										
PROCESSING		Unit										
		100	90	80	70	60	50	40	30	15		
D13 parts per 100 parts of MGQ 32140		5.4	6.3	7.2	8.1	9.0	9.9	10.8	11.7	13.1		
BDO parts per 100 parts of MGQ 32140		0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30		
SD5 % / total (by weight) (catalyst at the head)		100	100	100	100	100	100	100	100	100		
Recommended temperature of the moulds	°C	15'	13'	12'	11'	8'	7'	5'	4'	3'		
Pot life (on a 400 g mixture) **	min	20'	20'	20'	20'	20'	20'	20'	20'	20'		
Demoulding time	min	16 - 80	16 - 80	16 - 80	16 - 80	16 - 80	16 - 80	16 - 80	16 - 80	16 - 80		
Minimum cure time / Temperature												
<b>TYPICAL ELASTOMER PROPERTIES</b>												
Hardness at 20°C	Shore A	55	60	65	70	75	80	85	90	95		
10 % Modulus	MPa	0.6	0.7	0.8	0.9	1.1	1.4	2.6	3.8	6.2		
100 % Modulus	MPa	1.6	2.2	2.8	3.2	4.0	5.0	7.1	9.3	12.9		
200 % Modulus	MPa	2.0	3.1	4.1	5.0	6.2	7.6	10	12.5	15.7		
300 % Modulus	MPa	2.9	4.5	5.9	7.2	8.9	10.6	13	15.6	18.3		
Tensile strength	MPa	18	27	32	36	39	41	28	33	36		
Elongation at break	%	620	580	565	560	545	550	560	580	600		
Tear strength : without nick	kN/m	34	45	55	64	75	82	103	117	135		
Tear strength : with nick	kN/m	19	19	21	22	24	26	40	49	65		
Resilience	%	28	28	28	28	28	28	36	36	36		
Abrasion loss	mm <sup>3</sup>	20	20	40	50	50	50	60	65	85		
Compression set (*)	%	41	45	42	26	21	20	26	27	27		
Hardness at - 5°C	Shore A	62	67	72	76	80	86	90	94	96		
Hardness at + 80°C	Shore A	48	52	58	63	68	74	82	87	93		
Specific gravity		1.17	1.17	1.17	1.17	1.17	1.17	1.18	1.19	1.20		

(\*) 25 % deflexion 22 hours at 70°C

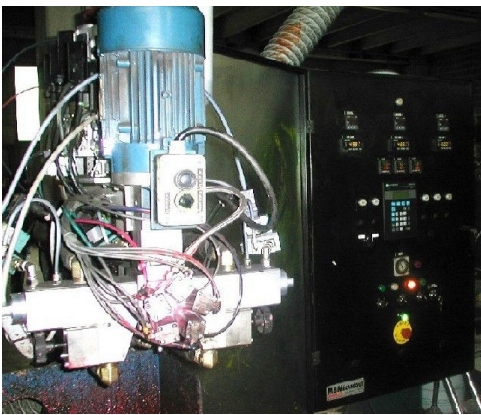
\*\* Possibility to shorten or lengthen the pot life by increasing or decreasing the catalyst quantity

## THE WORKSHOP

The factory has two kinds of production: standard and custom made.

For melting production we use two different casting machines: the QM3 CS and the QM3 CV with automatic colour control.

Other facilities are eight casting heated tables, three ovens and two sandblasting machines. To produce the moulds URETEC use the numerical control tool machines.



Casting machine QM3 CS

The workshop



Sandblasting

