

# RESINEX **n**ews

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## Oceans under control

*From the submerged telescope in the Mediterranean to anti-tsunami monitoring in the China seas: with Resinex buoys safety is guaranteed from the surface to the depths. (Pages 2 and 3)*

**Oi10**  
oceanology International  
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London - Stand E550

### Super mooring for maxi-yachts



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*Night-time navigation in the Aussa Corno canal (page 6)*

*Three catamaran buoys for ferry boat mooring in the port of Bari (page 7)*

*Resinex Jumbo buoys for Valona power station (page 6)*

### Support buoys: the Saipem's 600



(pages 4 and 5)

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London - Stand E550  
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Osea 2010  
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30 November - 3 December 2010

*Oil offshore: the Caspian sea boom (page 4)*

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## From the depths to the stars

### *A telescope in the Mediterranean to look at the sky*

**D**escending until and beyond 3 thousand metres under the level of the sea even though it was projected to sustain pressures until 400 bars can be found the experimental Nemo project (Neutrino Mediterranean Observatory) which the Institute of Nuclear Physics (INFN) has in course to create a telescope of a new conception, baptised "Kilometro cubo" (Cubic kilometer).

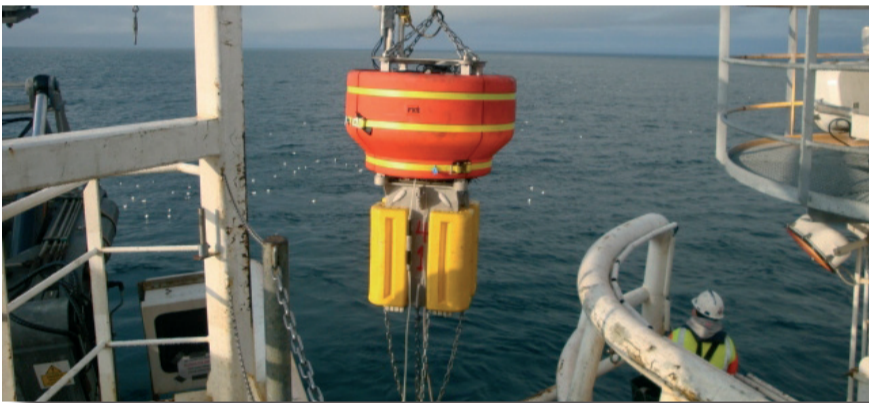
The syntactic foam floats which support this installation are Resinex products, just as those used in 2005 during the first phase of the experiment. In the light of experience the new buoys have been made thin-

ner, obtaining greater modularity. Purposely studied for deep water, they were positioned at the base of the mini towers which give support to the structure and are currently in the test phase. The Nemo project foresees the construction of a big submerged antenna in order to reveal high energy neutrins coming from astrophysic sources. Revealing the presence of neutrins could extend the knowledge of the actual astronomy which is based on the revealing of photons, that is light and electromagnetic radiation.

It also represents the biggest monitoring station (oceanographic, geophysical, chemical and acoustic)

in the marine environment as well as a pole of technology development for the exploration of the abyss. The definite location will probably be off Cape Passero (Sicily), which will permit the telescope to be positioned at a depth of about 3.500 metres and some 100 kilometres off the coast of Sicily. Under this stretch of water, the telescope will be in optimum position of darkness in respect to low energy cosmic radiation that at a more shallow level would counter it and not allow the observation of the neutrins. It will extend for two square kilometres and is made up of 81 750-metre high towers with about 5.000 light sensors.

### **Buoy modules for RXT in Brazil**



*Reservoir Exploration Technology (RXT), the Norwegian company specializing in geophysic relief of the seabed exploration on behalf of the oil industry and sysmic control has been furnished with Resinex support floats assembled on surface buoys destined for the new operational field in Brazil.*

*These are floating modules which support an installation for registering signals from the seabed. After the delivery of 40 medium depth buoys (300 metres) the Scandinavian company confirms the choice of Resinex buoys for its seabed mapping operation.*



*The Nemo module with by Resinex orange buoys 4000 meters water depth rated.*

### **Vulcanology at 6.000 Metres**



*The national institute of geophysic and vulcanology of Rome (INGV), which carries out a precius work regarding sysmic research and vulvanology is also involved in the study of underwater telluric phenomena. It manages among others a large band Mediterranean MedNet sysmic net which continuously monitors in deep water, arriving to depths of 6 thousand metres. Also INGV turns to Resinex technology to have reliable and sure deep water syntactic foam modules which is by now able to produce floats which can support pressures of up to 1.100 bars.*

### **CNR uses Resinex deep water**



*The image refers to an oceanic moorage with a Resinex buoy by Cnr-Issia of Genoa and Enea-Cram of La Spezia near the Odas Italia 1 buoy-laboratory anchored in the middle of the Liguria sea at a depth of 1.200 metres.*

*The positioning was carried out by technicians from the National Research Centre (CNR) and the Italian Navy ship Tavolara. The Resinex buoy was studied to operate at a depth of 300 metres and will be utilized in the sphere of the CNR experiments.*

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## Anti tsunami sentinels

### Warning system in the Southern Chinese sea

The two early warning anti tsunami system assigned to the state oceanographic administration of the People's Republic of China that are to be positioned in the South China Sea will be utilizing Resinex buoys. This is the marine component of the system and is made up of two Poseidon class Envirtech tsunamimeters positioned at a depth of about 4.000 metres and supported by two oceanic Resinex buoys built to resist force 12 seas and of two mooring lines formed by Resinex Synt floats studied for 4 thousand metre depths. The system will have to remaining the sea for two consecutive years without maintenance in a zone continually

bombarded by tropical typhoons. The buoys, extremely stable, will have to withstand 120 plus kilometre winds and 12 metre plus waves, conditions which are, by now, very frequent in the South China Sea.

The system is composed of two monitoring stations dislocated at a depth potentially covering between 500 and 7.000 metres which transmits pressure parameters taken from the seabed and relays them to the surface buoy which in turn transmits the information via satellite to a control centre situated in Beijing therefore giving the alarm for a tsunami generated off the southern Chinese coast.

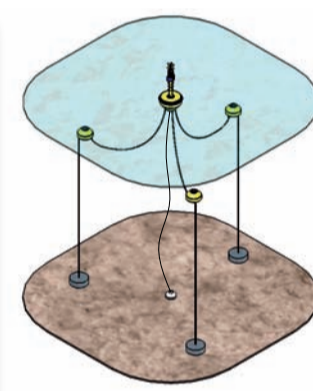


The buoys in the factory: working at a 4.000 mt depth.



Above, the monitoring system diagram.

### A non-rotation anchorage



Corr-Tek is a company which is involved in the production of scientific measuring instruments for water monitoring as well as planning and installation of plants for measuring drainage and in controlling physical and chemical water parameters. It had to project a marine survey station, particularly stable, positioned off the port of Goro (North Adriatic). Our technical office, as a result, created a floating laboratory formed by a central buoy with three anchorage points supported by jumpers which guaranteed both stability and resilience.

### Otranto: canal monitoring



The National Institute of Oceanography and Experimental Geophysics (OGS) of Trieste has installed an instrument monitoring buoy in the Otranto canal as part of a European project. This is a floating system connected to a depth of 1.200 metres and fitted instruments and sensors in order to carry out profiles of the wind and water. For this project a Resinex model Pem18 buoy was used with a float of 1.8 metre diameter with a signalling lantern. The power is guaranteed by solar panels.

### Among the Antarctic ice



It was tested twice. The first time in February 2009 in the Black Sea by the Nato alliance research ship. The second time in the central Ligurian sea by the Italian naval ship Tavolara. We are speaking about the Resinex model RS6 buoy which is destined to carry out scientific experiments in the gelid waters of the Antarctic. It will be part of the national research programme in Antarctica, an Italian project which is studying planetary phenomena.

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## Boom in the Caspian



Oil exploration in the Caspian sea area is experiencing a boom period as is demonstrated by the numerous requests for Resinex products from various companies. Nine Resinex Pdr 4000 pennant buoys were recently positioned in the Caspian sea by the Marine Engineering Technology of St. Petersburg for operations linked to the activities of the fleet. These were big buoys with a 4.000 kg net buoyancy, enormous parallelepipeds in polyurethane foam covered with polyurethane elastomer and fitted with a lantern on the upper part in order to signal its presence.

102 anchorage floats were ordered by the Scottish company Emm Corporation for its offshore activities in the Caspian and were consigned by Resinex at the end of 2008 to the port of Baku in Azerbaijan. Produced in linear Pe rotationally molded and filled with polyurethane foam, they were mounted on a metal part projected by the consignee so as to form a series of 17 buoys, each consisting of six modules of 2,2 metres in length. The net buoyancy of each buoy is 25,6 tonnes.

We also supplied in May 2008 14 light buoys to Baku on behalf of Caspian Engineering.



## Micoperi chooses Resinex

44 Resinex Pem10 buoys were consigned over a period between 2008 and 2009 to Micoperi, an international marine installation company with its headquarters in Ravenna. These were floats in linear rotational polyethylene filled with polyurethane foam.

Three eyes were fitted on the two extremities of the metallic part which ran through the floats. Every buoy weighs 285 kilos with a 2,4 metre length and 1 width. They generate 1.000 net buoyancy and are able to work up to depths of 100 metres.



## Offshore: the

The project is of colossal dimensions and long term. It is being carried out, on behalf of Aramco, by Snamprogetti Saudi Arabia and the consortium Star (Saipem, Taqa, Al-Rushaid). It foresees the construction and installation of 27 offshore platforms for the extraction of oil and gas at sea including the positioning of pipelines and cables. This is the first time such an undertaking of this kind and size is being carried out on the Saudi Arabian coast. The initial agreement has a duration of seven years and foresees a renewal option. The work is taking place at a site of 300 thousand metres at the port of King Abdulaziz at Dammam with an access to deep water. It has about 900 workers and an initial production capacity of 14 thousand tonnes of steel per annum. It is here that the construction of the platforms has already begun and will be launched in the next few years. In the next four years the positioning of at least 14 platforms is foreseen with 80 kilometres of pipeline and related cables. A project of this size and investment naturally demands the maximum quality of all the components including those collateral.

As the positioning of the opera draws closer, it is inevitable that, regarding the floating components, the project team should turn to Resinex. In order to give support to the transport, positioning and placing of the platforms, an order for 600 Resinex support buoys, model E8x1050 with a net buoyancy of 500 kilograms each, arrived from Saudi Arabia. Also for the same project, 39 Damage Prevention Buoys in elastomer (4500 L type) with a net buoyancy of 4,5 tonnes were ordered. All the buoys supplied for this project have been fitted following the Namasta Saipem project, with a radio frequency detector, a type of identity card in order to know the characteristics of the buoy from a distance.

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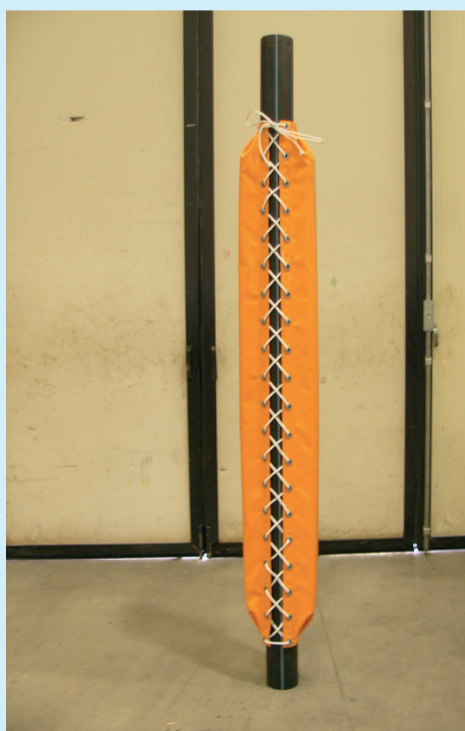
## In the Congo deepwater



*Prosafe, the Scandinavian group quoted on the Oslo Stock Exchange and active in the supply of services to semi submersible drilling plants has chosen Resinex for its Congo operations. Here, in the Azurite field, the company is utilizing the MIT Europa ship, converted into FDPSO (Floating, Drilling, Production, Storage and Offloading unit). The float chosen by Prosafe is a support buoy type Pem15 of 2,3 metres in length. The said buoy has an operational capacity up to 200 metre depth.*

## Cables laced-on

*In the vast product range which makes the Resinex catalogue there is a fast, easily manageable system to make a cable floating. The models which can be seen in the images are called "Lace On" because they fasten on, wrapping around the cable in variable dimensions to create floatability. They are formed by a floating part in polyurethane, inserted in a Pvc sheet through which the cable is fitted. The images refer to a batch produced for Harpex Nigeria.*



# Saipem's 600

## Y reducers for pipelines in Kuwait



*Four giant floatation Y reducers for oil conducts were supplied by Resinex to the Kuwait state oil company (Koc). Each one has two 16" pipes reduced at a single 24" pipe. It is a stretch of floating pipeline which meets the very rigid safety norms required by this particular offshore application for the material quality and for welding control (also X ray).*

## Synt Resinex for Sapesco



*The Egyptian Sahara oil corporation (Sapesco) has chosen Resinex technology for its deep water operations. The supply of floats in syntactic foam, studied and tested to ensure work in safety for depths of up to 1.500 metres under sea level, has already left for Egypt. Naturally these underwent deep water tests in the pressure tanks at the Resinex Marine Research Centre which are able to carry out simulated resistance test up to 880 bars.*

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## Channel by night

### Nocturnal navigation and remote control

**R**esinex has projected and created an innovative signalling system for the night navigation in the river canal of Aussa Corno and in the canal of the Marano Lagoon, which link to the open sea Port of Nogaro, near Udine, northern Venice.

In the past, the night navigation was forbidden for safety reasons, while now, the new plant of signalisation increases the commercial capacity of the whole area.

The system is composed of 48 light signals placed on wooden pipes and of a signalling beacon positioned in the open sea and equipped with a Racon and with a 6 Nm lantern. Client is a government company, the Consortium for the Industrial Development of Aussa Corno. Before projecting the system, a deep analysis of the environmental impact has been necessary. As a matter of fact, these lights shine on the habitat of the birds which nest in the nearby natural park of the Lagoon.

The study has run Resinex to the manufacturing of special signals, darkened for 180° towards the external side of the canal in order not to disturb the birds during the night lighting.

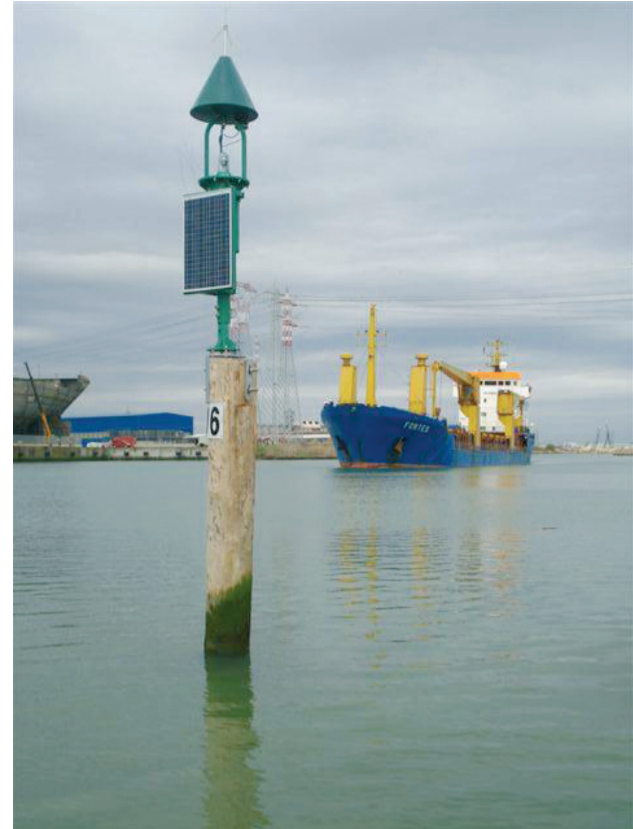
Moreover, to respect the environment and to avoid a light pollution, it has been provided the whole system with a remote control lighting, which does not start automatically by a crepuscular photocell at night.

In this way, it has been possible to reduce considerably the eventual disturb caused by lights, which through the remote control are turned on by pilots only at the incoming or outbound passages of the vessels towards Port of Nogaro. Besides the pilots, the system is completely remote controlling, also from the operations plant based in the offices of the Nogaro Port Authority. From the very same operations station is also possible to monitor the whole system, checking every instant the efficiency state of the lanterns, batteries and solar panels which power them.

The signals are composed of a telescopic steel structure, with an adjustable base, which has allowed to align the lanterns also against different heights of the wooden pipes.



At Porto Nogaro night-time illuminations operated by an on-board portable remote control unit.



## Jumbo for the power station



**T**he first of the four giant catamaran Resinex Pem43 buoys brilliantly passed its traction test that was supplied to the Maire Tecnimont group which had obtained from the local government the construction of a power station fitted with a gas combined cyclic cogeneration plant in the bay of Valona in the south of Albania.

The construction of the plant, 100 megawatt, foresees an investment of 115 million euros, of which 92 million is for engineering procurement-construction and 23 million for maintenance services. For the mooring of the big gas tankers which bring fuel to the power station the Resinex jumbo catamaran buoys have been chosen of whose production Resinex has always been the world leader. The four buoys consigned are formed of unsinkable sections in polyethylene filled with polyurethane and have a diameter of 4,3 metres by 1.1 with a weight of 4,5 tonnes. They are fitted with special quick release hooks.

### Safer breakwater for the lagune



Three Resinex elastic beacons were positioned by the Clodia company in order to signal the breakwater placed outside the mouth of the Chioggia port in the Venice lagune. The opera was part of the Mose project which also foresees a mobile dam system against high water. The three Resinex elastic beacons represent the solution to a tricky problem which is to signal the presence and extension of the outer dam, some 500 metres long, which in the past, due to inadequate signalling, created navigational problems. They were placed in 10-metre deep water and are fitted with a top mark.

### The Caligolan lighthouse



At Pozzuoli, Resinex delivered a new lighthouse tower to complete the amplification of the caligolan dock of "porto flegreo". The new outer dam, lengthened to 360 metres and caisson in concrete, was built by the Astaldi-Giustino group and brought the port capacity to some 2000 boats. The tower is 2,4 metres in length and more than 7 metres in height, all in stainless steel, painted green for signalling and furnished with a led light with a range of 8 nautical miles. The light is positioned inside a 1-metre diameter copper cupola with a L1 type lantern which was supplied by the Italian Navy.

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## Three giant catamarans for the ferries



Every buoy has a diameter of 5,8 metres and weighs 16 tonnes.

The mooring of the ferries to the west dock of the Port of Bari has become easier and safer, since three huge Resinex mooring buoys have been positioned in water.

We are talking about three plastic modular jumbo buoys, which make the docking and stay operations of huge vessels in the port much easier, especially during the loading and offloading operations of vehicles and passengers, allowing the maximum stability of the ships.

The installation was made in Spring 2009, by the company Grandi Lavori Fincosit, on behalf of the final user, the Port Authority of Levante.

Each buoy weighs 16 tons and it has a reserve buoyancy of 36 tons. It has a diameter of 5,8 m, a height of 2 m and in the upper part a particular Marimatech quadruple hook has been positioned. This hook is provided with a

special mechanism of quick release (quick release hook). Every mooring point has an admissible load of 100 tons. (The steel part of each buoy has a SWL of 300 tons).

In the west dock of the port of Bari, ferries of more than 200 m of length are used to moor. Many of these ferries are used as transport of merchandise and passengers.

The stern, from which the loading and offloading is made, remains in the quay, while the bow is secured to the Resinex buoys.

This Resinex Catamaran system, maintains the horizontal position even under the worst mooring loads. It also allowed the presence of personell on the buoy which can work under absolutely safe conditions.

Signalling is made through a self-contained marine lantern and a top mark with radar reflector.

The buoys have a quadruple hook for mooring.



## The Vulcano protection



Ferry docking at the port of Vulcano in the Eolie isles is now safer since the placing of four Resinex fenders at the quay. 2,8 metres in length and 1,4 in diameter, the metallic part is made of stainless steel. The internal is of high density polyurethane wrapped in overlapping layers while the cover is in elastomer polyurethane with an 8 millimetre thick orange coloured pigmentation.

They are able to absorb 67 tonn./metre of energy and have a reaction force of 119 tonnes.

## Stainless steel beacons



Even the tourist port of Rodi Garganico situated in the province of Foggia on the Puglia Adriatic coast utilizes Resinex signalling.

The Cidonio company, which realised the infrastructure, was supplied with a fixed pole and two land beacons all of which were made in stainless steel.

These last two, one red and one green, were placed at the port entrance.

They have a focal plane of 6,5 metres and are fitted with a Led light which has a range of 6 nautical miles. The other yellow SS beacon signals the ferry landing area.

## Long channel signal



Resinex products have been chosen for nocturnal illumination of the canal which leads to the port of Ravenna. This allows the stretch to be navigable at night and enables the vessels moored along the Piomboni dock (western branch) to exit.

A long row of fixed poles fitted with signals and self-contained led lanterns were positioned on which a red coloured beacon was placed with a solar panel charged lantern.

The port of Ravenna is a canal port extending for 14 kilometres.

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## Resinex means safety

*We are the first producer of mooring-buoys for maxy yachts*

**W**hat the most important tourist ports in the Mediterranean dedicated to the hosting of the biggest and most expensive yachts in the world have in common? The answer is that all of these are equipped with Resinex mooring buoys, the safest and most reliable available on today's market.

This is true in Sardinia, on the Smeralda coast, Malta and even the Antibes, the French paradise for maxi-yachts. Here, between 2008 and 2009 our firm delivered 51 Resinex Pem21 module models to the Denis Gaucher company of Port Vauban which were installed on the quay for the use of the big boats of the most important clients in order that the existing buoys could be substituted restored.

Port Vauban, situated in Antibes between Fort Carré (on the west) and the bastion of the old town, is a port dating back to the Ancient Greeks, who founded the antic Antipolis. Today it is the major European tourist port and the second in the world. The choice to use Resinex products in order to give assurance to these precious and demanding yachts is another witness to the reliability of our buoys.



## Our stands in the exhibitions over the world



1



2



3

It is more and more incisive the attention of Resinex to the international markets, which represent by now, more than 70% of the turn over of our company. Also this year, our presence in most of the main sector exhibitions in Europe, Asia and America, has been considerable.

From Singapore to Houston, from London to Rotterdam, from Monaco to Ravenna, the Resinex stand has been a point of reference for the insiders.

*The pictures in this page: 1 The Prince Alberto of Monaco visiting Resinex booth at the Deep Offshore Technology in November 2009. 2 Clients at Resinex stand at Europort 2009 in Rotterdam. 3 Resinex booth at the OTC in Houston in May 2009.*

### Rovato: a new plant



A new production plant was inaugurated in the Autumn of 2009 at Rovato in a modern factory situated in an industrial area in the province of Brescia. It is here that our company has decided to concentrate the roto-moulding production of buoys in polyethylene to exploit the new plant so as to produce buoys of elevated dimensions. Rovato joins those of Torbiato, which is now dedicated only to ultra deep projects, and Adro (test and quality) together with the administration offices in Milan.

### A buoy for Alinghi



While Alinghi, the great racing catamaran, is preparing to defend its American's Cup, its base of Port Valais, at the influence of Rodano with lake Geneva in the Vallese canton, was supplied with a Resinex buoy. This is a buoy covered with polyurethane elastomer. It is 1,250 metres in diameter and 1 metre in height. It is fitted with a swivel pick-up hook for mooring and a light signal for night illumination.

### The Singapore branch



The opening of an office in the Far East was almost inevitable also in light of the growing importance that the Asian market has acquired in the world economy. So, in the month of June 2009 Resinex inaugurated its own commercial office in the city-state of Singapore situated on the 25th floor of North Tower in One Raffles Quay. The new office telephone number is +65 6622.5580-1-2 (fax: +65 6622.5999, e-mail: sales@resinexasia.com).