



## TECHNOLOGY EXPO AND CONFERENCE

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# UV Curing Market's Overview South America





Region ranking	World ranking	Country	GDP 2015 <u>USD</u> MM	GDP per capita 2015 <u>USD</u>
—	—	<a href="#">South America</a>	6,589,274	15,86
1	7	<a href="#">Brazil</a>	3,172,815	15,52
2	26	<a href="#">Argentina</a>	930,345	19,24
3	31	<a href="#">Colombia</a>	682,977	14,16
4	35	<a href="#">Venezuela</a>	550,226	17,79
5	43	<a href="#">Chile</a>	431,802	24,17
6	46	<a href="#">Peru</a>	403,322	12,64
7	63	<a href="#">Ecuador</a>	192,728	11,84
8	91	<a href="#">Bolivia</a>	74,836	6,53
9	92	<a href="#">Uruguay</a>	73,056	21,39
10	100	<a href="#">Paraguay</a>	61,587	8,78
11	151	<a href="#">Suriname</a>	9,766	17,50
12	160	<a href="#">Guyana</a>	5,814	7,28



## Economic Overview

- Brazil is by far the largest and most important economy of the region.
- In terms of GDP, Brazil represents about 50% of the total of South America.
- The total population of the region is about 400 million.
- Brazil's population is about 210 million.
- In terms of potential market for UV curing Technology, Brazil is about 80% of the total.





## Economic Overview

- Since Brazil is the most important economy in the region, any negative result it may have drastically damages the overall result.



- The UV cure area has kept the same volume of 2014. In spite of the reduction in some mature segments like wood, many other applications are growing, like graphic arts and others.



## Economic Overview

- Every year, new companies are always migrating from conventional cure systems mainly to UV; LED UV and EB are still in the beginning.



- Besides the technology demand, the energy costs are also pushing the migration to Radiation curing systems.
- The pressure for low prices is very aggressive in South America, mainly in Brazil where the competition is stronger.



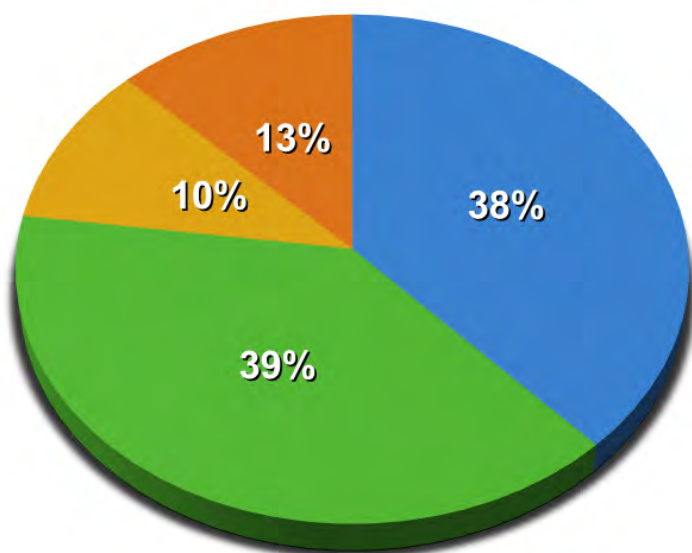
## Total of the potential market in terms of raw materials

	Volume (Tons/year)	Average CFR price (US\$/Kg)	Total Value (US\$/year)
<b>Brazil</b>			
Monomers	5,950	US\$ 2.80	US\$ 16.660.000
Oligomers – Epoxy	6,120	US\$ 2.20	US\$ 13.464.000
Other Oligomers	1,620	US\$ 6.00	US\$ 9.720.000
Photoinitiators	1,962	US\$ 7.80	US\$ 15.303.000
<b>Total</b>	<b>15,652</b>		<b>US\$ 55.147.000</b>
<b>Other Countries</b>			
Monomers	1,488	US\$ 3.10	US\$ 4.611.000
Oligomers – Epoxy	1,530	US\$ 2.80	US\$ 4.284 .000
Other Oligomers	405	US\$ 7.00	US\$ 2.835.000
Photoinitiators	491	US\$ 8.10	US\$ 3.973.000
<b>Total</b>	<b>3,913</b>		<b>US\$ 15.703.000</b>
<b>South America</b>			
Monomers	7,438		US\$ 21.271.000
Oligomers – Epoxy	7,650		US\$ 17.748.000
Other Oligomers	2,025		US\$ 12.555.000
Photoinitiators	2,453		US\$ 19.276.000
<b>Total</b>	<b>19,565</b>		<b>US\$ 70.850.000</b>



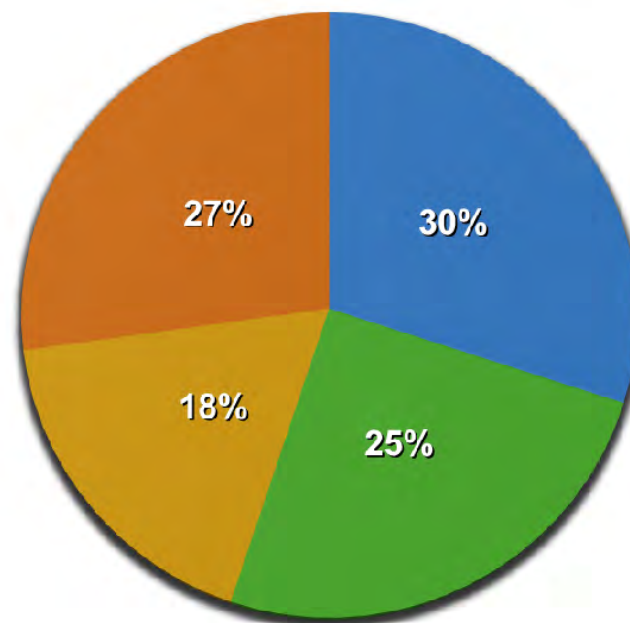
## South America - Market Share

### Volume



- Monomer
- Oligomers

### Value



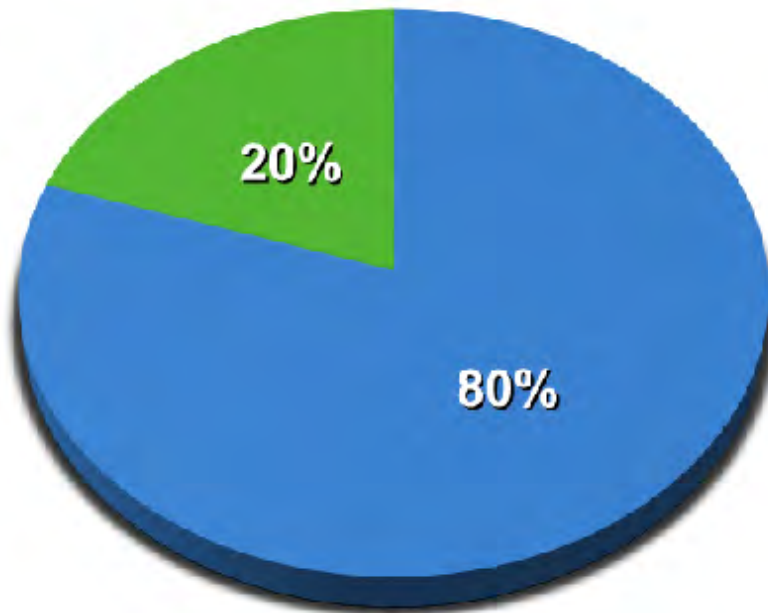
- Oligomer Epoxy
- Photoinitiator



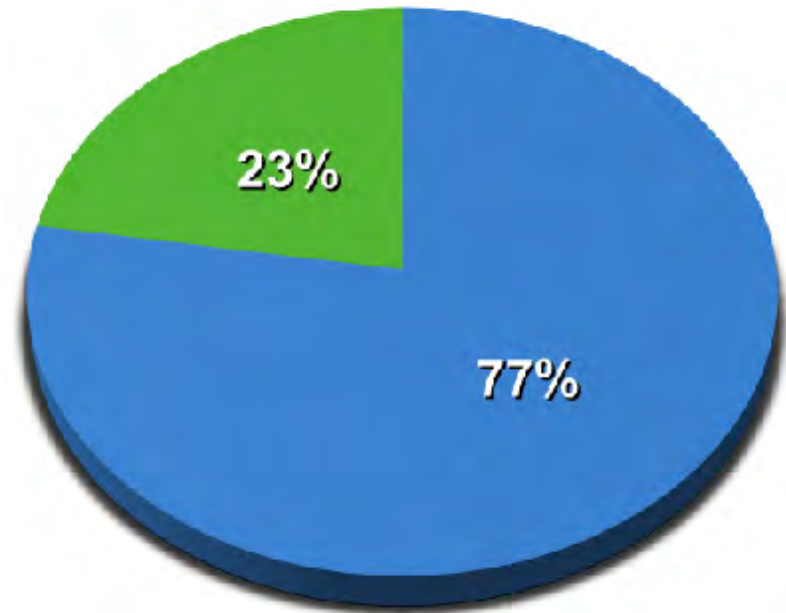


## South America - Market Share by Countries

Volume



Value



■ Brazil

■ Other Countries



- Brazil produces mainly commodities such as:

UV coatings for the wood furniture industry

OPV (overprint varnish) for various applications

- Also important areas:

Graphic arts

Printing inks

- Other segments still growing and developing:

Plastics

Electronics

Food packaging

Paper

Metal

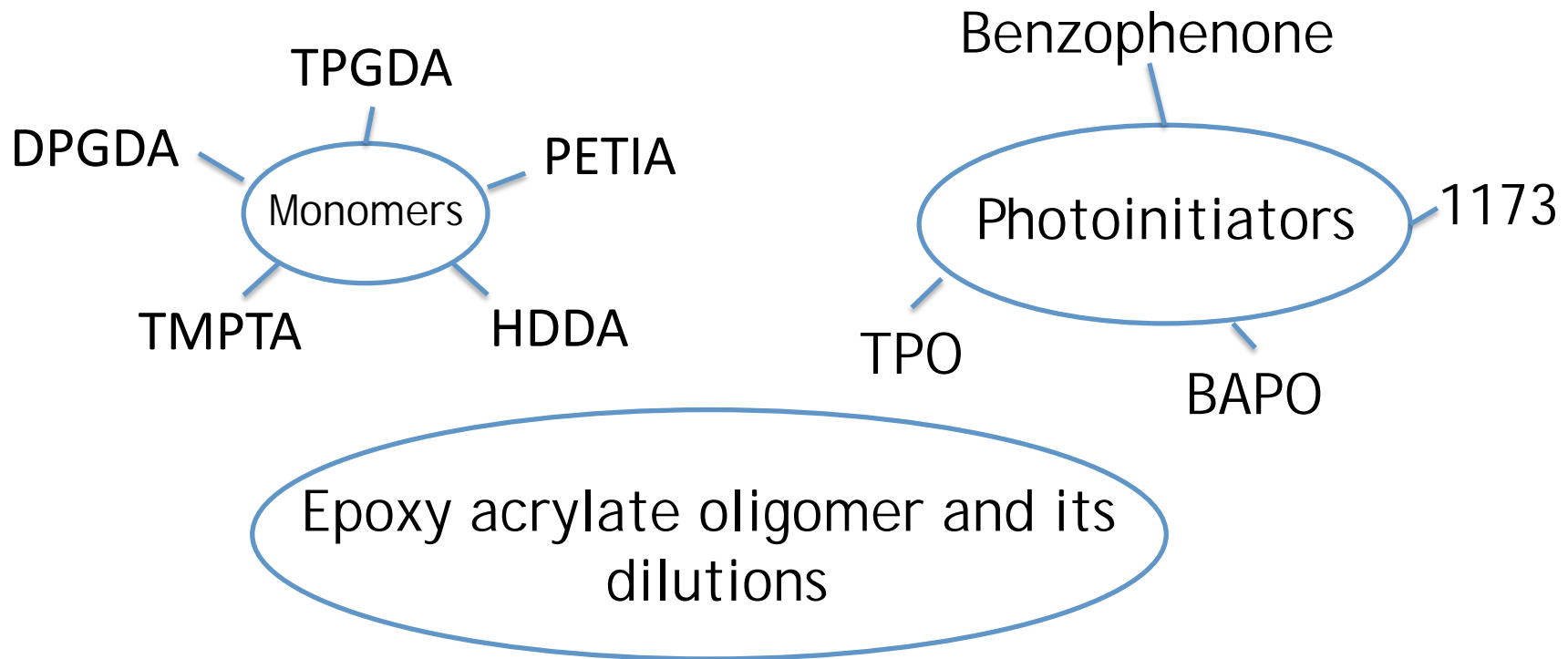


The main producers of UV inks in Brazil are:

Importers of UV raw materials

Producers of their own epoxy acrylate and polyester acrylate oligomers and their dilutions

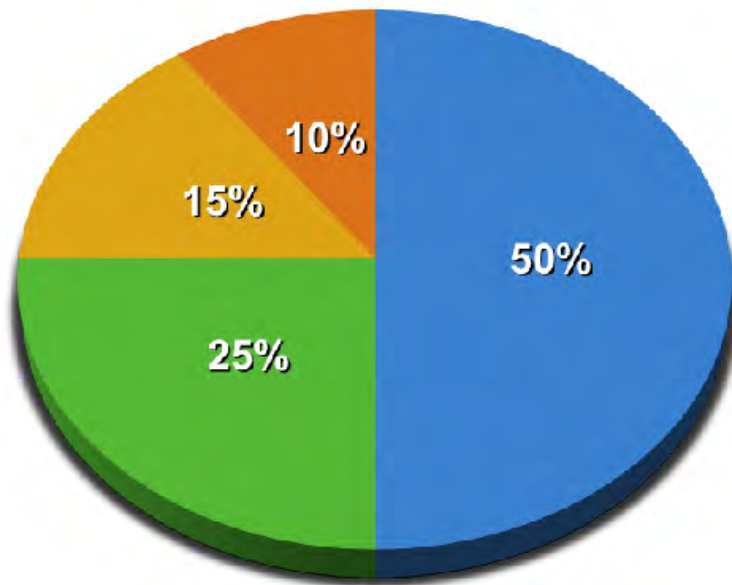
The most commonly used PRODUCTS are:





## Market Segments - Brazil

- The estimated volumes and potential are:



Wood Coatings and Varnishes - US\$ 31.1 MM

OPV - US\$ 15.55 MM

Graphic Arts and Inks - US\$ 9.33 MM

Others - US\$ 6.22 MM

■ Wood

■ OPV

■ Graphic Arts & Inks

■ Others



## Main Trends and Needs

- LED UV graphic arts, inks and wood
- Inkjet UV
- Low migration formulations for food packaging
- UV for plastics (adhesion, flexibility)
- 3D printing UV
- UV for automotive refinish
- UV for metal application
- Polimerics photoinitiators and cationic system





## Seminars Radtech South America in Brazil





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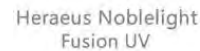
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## INSTITUTIONAL SUPPORT





THANK YOU!