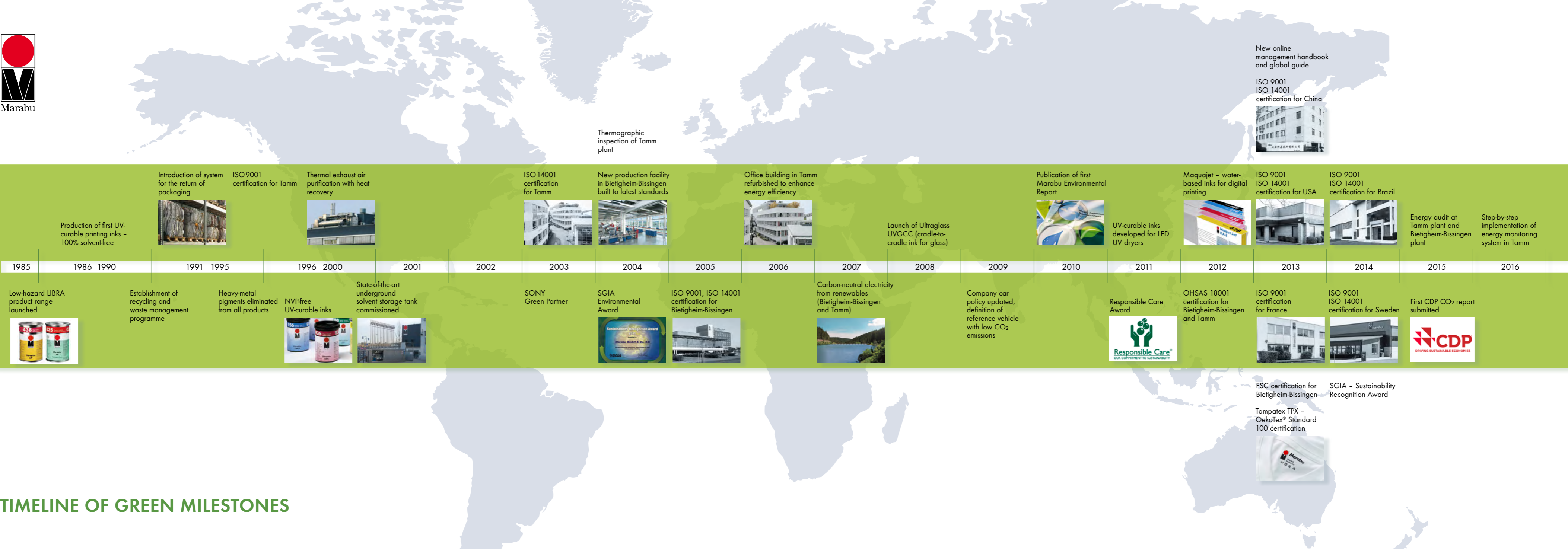




TIMELINE OF GREEN MILESTONES



New online management handbook and global guide

ISO 9001
ISO 14001
certification for China



Thermographic inspection of Tamm plant

Introduction of system for the return of packaging
ISO 9001 certification for Tamm



Thermal exhaust air purification with heat recovery



ISO 14001 certification for Tamm



New production facility in Bietigheim-Bissingen built to latest standards



Office building in Tamm refurbished to enhance energy efficiency



Publication of first Marabu Environmental Report



Maquajet - water-based inks for digital printing



ISO 9001, ISO 14001 certification for USA



ISO 9001, ISO 14001 certification for Brazil



Energy audit at Tamm plant and Bietigheim-Bissingen plant

Step-by-step implementation of energy monitoring system in Tamm

Low-hazard LIBRA product range launched



Establishment of recycling and waste management programme

Heavy-metal pigments eliminated from all products

NVP-free UV-curable inks



State-of-the-art underground solvent storage tank commissioned



SONY Green Partner

SGIA Environmental Award



ISO 9001, ISO 14001 certification for Bietigheim-Bissingen



Carbon-neutral electricity from renewables (Bietigheim-Bissingen and Tamm)



ISO 9001 certification for France



ISO 9001, ISO 14001 certification for Sweden



FSC certification for Bietigheim-Bissingen

SGIA - Sustainability Recognition Award

Tampatex TPX - OekoTex® Standard 100 certification



KPIS

Input – Tamm plant

		2012	2013	2014	2015	2016
Energy						
Electricity	[kWh]	2,336,706	2,399,362	2,297,776	2,551,467	2,518,215
Natural gas	[kWh]	2,750,007	3,526,717	2,857,858	3,007,862	2,891,256
Total energy consumption	[kWh]	5,086,713	5,926,079	5,155,634	5,559,329	5,409,471

Input materials						
Fresh water	[m³]	4,592	4,947	6,200	4,642	4,121
Binders and resins	[t]	591	571	581	600	576
Solvents	[t]	1,374	1,375	1,426	1,343	1,483
Pigments	[t]	340	318	349	334	356
Fillers	[t]	147	144	157	148	146
Additives/agents	[t]	110	113	114	118	118
Metallic and glitter effect materials	[t]	13	12	13	15	13

Output – Tamm plant

		2012	2013	2014	2015	2016
Emissions (gaseous)						
CO ₂	[t]	928.7	1,093	931.9	947.4	920.6
CO	[t]	0.3	0.4	0.4	0.4	0.4
NO _x (as NO ₂)	[t]	0.6	0.6	0.6	0.6	0.6
Total carbon	[t]	0.8	1.2	1.3	1.2	1.2

Emissions (solids)						
Hazardous waste						
Paint and distillation sludge	[t]	94.3	91.9	100.1	92.1	90.9
Waste paint and ink	[t]	10.7	4.5	11.7	13.1	11.2
Other	[t]	1.8	3.8	27.7	12.2	4.7
Total hazardous waste	[t]	106.8	100.2	139.5	117.4	106.8

General waste						
Mixed plastic and other waste	[t]	38.4	35.6	33.7	33.5	36.9
Paper/cardboard	[t]	34.5	33.0	37.8	34.6	32.4
Wood	[t]	4.7	2.9	2.8	2.9	6.4
Scrap metal	[t]	48.6	25.1	29.1	41.3	46.9
Other	[t]	1.5	5.2	4.6	6.2	4.1
Total general waste	[t]	127.7	101.8	108.0	118.5	126.7

Emissions (liquid)						
Waste water	[m³]	4,592	4,947	6,200	4,642	4,121

Products						
Total quantity	[t]	2,494	2,483	2,324	2,561	2,539

Input – Bietigheim-Bissingen plant

		2012	2013	2014	2015	2016
Energy						
Electricity	[kWh]	712,091	558,034	618,133	620,953	758,653
Natural gas	[kWh]	741,097	685,697	549,360	674,475	961,738
Total energy consumption	[kWh]	1,453,188	1,243,731	1,167,493	1,295,427	1,720,391

Input materials						
Fresh water	[m³]	1,845	2,149	2,456	4,349	3,382
Binders and resins	[t]	131	186	239	218	325
Solvents	[t]	8.0	12.0	18.0	14.0	22.0
Pigments	[t]	21.2	31.0	68.0	33.0	58.0
Fillers	[t]	48.4	69.0	94.0	104	120
Additives/agents	[t]	30.3	48.0	58.0	42.0	48.0
Metallic and glitter effect materials	[t]	0.6	1.0	1.7	1.6	2.0

Output – Bietigheim-Bissingen plant

		2012	2013	2014	2015	2016
Emissions (gaseous)						
CO ₂	[t]	271.8	247	218.6	238.5	305.7
CO	[t]	0.71	0.56	0.62	0.62	0.76
NO _x (as NO ₂)	[t]	0.14	0.11	0.12	0.12	0.15
Dust	[t]	0.007	0.006	0.006	0.006	0.008

Emissions (solid)						
Hazardous waste						
Paint and distillation sludge	[t]	6.4	11.2	16.2	11.1	9.1
Other	[t]	0.0	10.5	24.8	3.2	9.9
Total hazardous waste	[t]	6.4	21.7	41.0	14.3	19.0

General waste						
Mixed plastic and other waste	[t]	14	10	18	20	21
Paper/cardboard	[t]	23.9	27.0	38.7	36.5	40.3
Wood	[t]	2.1	4.2	5.1	7.5	2.1
Scrap metal	[t]	3.7	10.4	2.2	1.2	2.4
Other	[t]	0.8	2.1	3.8	10.7	0.0
Total general waste	[t]	44.6	53.8	67.7	76.3	65.8

Emissions (liquid)						
Waste water	[m³]	1,845	2,149	2,456	4,349	3,382

Products						
Total quantity	[t]	388	506	789	624	974