PRESENTATION OF POLE PRODUCTION

CONTENTS:

IMONT

1. Company General Information Sheet

Company Name:	Imont Industry for chemical treatment of timber Dravograd Ltd
Abbreviated name:	Imont d.o.o. /LTD./
Registered office:	Otiški vrh 156,2373 ŠENTJANŽ PRI DRAVOGRADU, SLOVENIJA
Established:	1950
Legal form:	Company with Limited Liability (Ltd.) Manufacturer: Industry for chemical treatment of timber
Ownership:	Private ownership
Chairman and Managing Director:	Mr. Maksimiljan URANŠEK
Number of employees:	50 (in Imont Head Quarter in Slovenia) Additionaly, the number of employees of Imont´s associated partners for creosote impregnation in Poland are 20.

Company Management :	
- General Manager:	Maksimiljan URANŠEK , B.Sc. (Eng.)
- Head of Purchase & Sales:	Maksimiljan URANŠEK , B.Sc. (Eng.)
- Head of Finance & Accounting:	Tatjana MARSEL , B.SC. (Econ)
- Head of Production:	Iztok Breznik
- Assistant Head of Pole Production:	Franci Založnik
- Sales:	Anita Knez
Certificates (Quality Accreditation):	- ISO STANDARD 9001, 14001

2.1. Production of Wood poles

GENERAL

Impregnated wood pole is used as a vertical support for telecommunication and overhead power lines.
It is made of lean and round pieces of timber of suitable dimensions. We remove the bark and apply the process of impregnation with special chemical substances (Biocide agents) to provide protection against decay
caused by biological agents as for ex. fungi, insects, bacteria and some water animals.
Impregnated wood poles are installed directly In the ground or on a concrete foundation.

WOOD USED FOR POLE PRODUCTIONS

Generaly for pole production are used following species of Timber:

Name:	Latin name:
Pine, black	Pinus nigra, Arnold
Pine, ordinary	Pinus sylvestris, L.
Maritime pine	Pinus pinaster, Ait.
Spruce, ordinary	Picea aibes, Karst.
Sitka spruce	Picea sitchensis. Carr.
Larch	Larix spp. Mill.
Fir, ordinary	Abies alba, Mill.
Fir	Abies pectinata, D.C.
Douglas fir	Pseudotsuga menziesi

For impregnation of poles we used :

- Creosote oils
- Water solutions

2.1.1 Poles treated with Creosot

This poles we produced from wood of Pinus Sylvestris and Creosote oil TIP WEI - B or WEI - C.

Standards:
Bs 1990: Part1 :1984
En 125120
EN 13991

Phisical caracteristic:
Ultimate extreme fibre stress in N/sq.mm 53,8
Modules of elasticity in N/sq.mm 10,480

2.1.1.1 Purchase Criteria for Timber Applied for poles

Timber from the Pinus Sylvestris is purchased and used for poles, and it has to comply with the following general requirements:

- timber is purchased with bark or roughly debarked,
- timber has to be solid and felled in winter seasson if possible
- after being cut down, timber should be transported from a temporary storage in the wood to the Imont production facility within 45 days at the latest,
- after debarking the pole has to be stored without being in contact with the ground, however, alowing air flowing freely between logs.

When purchasing timber for poles, the following characteristics have to be considered and/or the following defects have to be eliminated which are inadmissible for a debarked pole:

- timber has to be of a uniform growth, with a diameter growth of 0.6 to 1.0 cm per meter of lenght.

The following characteristics and/or defects are not allowed:

- timber damaged by wind, snow or fire,
- timber containing reaction wood,
- double sweep,
- sweep in the first third only,
- single sweep exceeding the one when the line connecting the center of the top and the center of pole butt does not fall out,
- cracks running in the transverse direction on the log axis,
- sharp and deep mechanical damage on 5 % log diameter,
  more than two damages at a distance of 50 cm, blue coloration of pine, larger than 50% for every meter in length,
- excentricity of heartwood larger than 1/10 timber measurement.

2.1.1.2 Process of pole peeling

PRODUCTION PROCESS

Debarked poles are made from high-quality timber on a special peeling machine which removes the bark only while the white colour is preserved to the highest possible level.
When poles are peeled off, such timber is than tailored in accordance with the prescribed dimensions and required properties for a debarked pole.

SURFACE TREATMENT OF PEELED POLES

Poles have to undergo treatment to obtain a smooth surface, with a completely removed bark except for the allowed quantity of bark pockets which comes to a 4-times diameter of a pole along its length, 0.5 diameter of pole along the width and which can be 12 mm deep.
Debarked poles are on their bottom cut off rectangularly to the axis and trimmed. On the top, a roof-shape finish is made under 90 ° to 130 ° angle.

2.1.1.3 Pole Dimensions

A debarked pole is specified with its length, with a diameter at a 1.5 m distance from the pole butt and on pole top.
Usually, users define the required dimension for the pole top depending on electric connections. The dimension 1.5 m from the pole butt depends on the nominal load at the top of pole.

2.1.1.4 Criteria Required for Wood Quality in the Production of Debarked Poles

We cannot identify and eliminate all permissible defects when purchasing timber. Therefore, a selection of debarked poles is made in the tailoring phase in regard to the following forbidden defects:

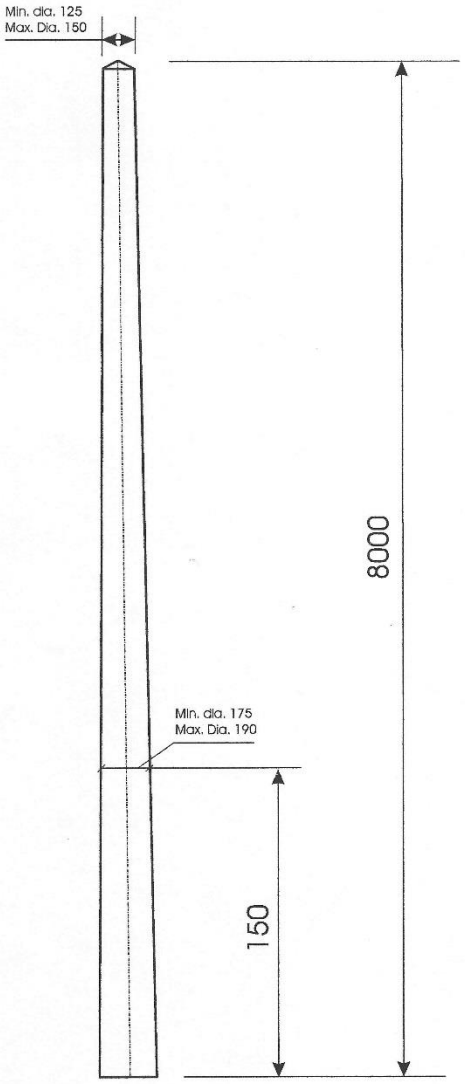
- Damage by fungi and beginnings of wood rot,
- Damage – holes made by insects with a diameter larger than 1.5 mm, exceeding 5 in number, evenly distributed in any 1 m length of the pole,
- Sapwood included in heartwood,
- Cracks running accross the pole axis,

IMONT d.o.o.
Otiški vrh 156, 2373 Šentjanž pri Dravogradu
Tel.: 00386**(0)2 87 85 082**, Fax: 00386**(0)2 87 85 498**

Bančni transkacijski računi:
A Banka Vipa d.d.: SI56 0510 0801 2301 532, SWIFT:ABANSI2X
Banka Koper d.d.: SI56 1010 0005 0936 829, SWIFT:BAKOSI2X

IMPREGNATED WOODEN POLE

WOOD TYPE - Pine - Pinus sylvestris ; TREATMENT - Creosot WEI B
LENGHT 8 m TYPE LIGHT



Wood type: Wooden poles of Scotts pine (Pynus Silvestris), Quality to Tech, Specification Bs 1990: Part1 : 1984

Wooden treatment: Poles are creosoted by Rueping empy-cell process to Bs 913 and Bs 144. Minimum retention of EN 13991 Creosote type B 115 kg/cbm

NOTES:
ALL DIMENSIONS ARE IN MM

TABLE 1: POLE DIMENSIONS BY GRADES

Grade	Pole Lenght	Diamater at the Top		Diameter 1,5 from the Butt		m3
	M	Minimum	Maximum	Minimum	Maximum	
Light	7,5	125	150	175	190	0,175
	8,0	125	150	175	190	0,183
	8,5	125	150	180	198	0,194
	9,0	125	150	180	200	0,205
	9,5	125	160	185	203	0,226
	10,0	125	160	185	205	0,246
	10,5	125	160	190	209	0,268
	11,0	125	160	195	214	0,290
	11,5	125	165	200	220	0,315
	12,0	125	165	205	225	0,339
	13,0	130	160	215	231	0,407
Medium	8,5	150	180	215	236	0,283
	9,0	150	180	220	242	0,313
	9,5	150	180	225	247	0,341
	10,0	150	185	230	253	0,369
	10,5	155	190	235	259	0,399
	11,0	155	190	240	264	0,430
	11,5	160	195	245	269	0,463
	12,0	160	195	250	275	0,496
	13,0	170	200	260	286	0,587
	14,0	175	205	276	302	0,719
Stout	8,5	190	240	265	291	0,358
	9,0	190	240	275	302	0,408
	9,5	190	245	280	308	0,443
	10,0	195	245	285	313	0,478
	10,5	195	250	290	319	0,537
	11,0	195	250	295	324	0,597
	11,5	195	250	300	330	0,640
	12,0	195	250	305	335	0,683
	13,0	200	255	320	352	0,798
	14,0	200	255	335	368	0,898
	15,0	200	260	350	385	1,002

- Mechanical damage deeper than 5 % log diameter and more than two in number at 50 cm distance,
- blue coloration of pine tree larger than 50 % for each meter of pole length,
- heartwood eccentricity larger than 1/10 diameter,
- a knot clusters with a diameter and/or sum of diameters larger than ¼ log diameter on the area of knot
- Fissures resulting from wood drying must not be deeper than a pole radius and one continued fissure must not be running on a length that exceeds a half of the pole,
- Ring shake on the pole tip and a star-like crack with more than five legs,
- More than one ring shake on the pole butt and a star-like crack where more than two such cracks spread up to 5 mm from the pole surface,
- Double sweep, bending only in the upper third of the pole,
- Single sweep larger than the one where the line connecting the pole tip center and the pole butt center does not stick out of the log,
- Cracks across the log axis,
- Twisted growth, exceeding 1/6 per log meter in length.

2.1.1.5 Storage of debarked poles

Finished debarked poles are stored on the works storage, well arranged by lengths and classifications in stacks until they reach 28 – 32 % humidity through natural drying.
Storage in stacks has to ensure separation of individual rows with 3 or 4 logs lying across. Contact between poles in one stack row must be prevented. Minimum distance between stacks is 1.5 m.
This will guarantee the air flow necessary for natural drying. Sand or strengthened floor must be applied for stacking to prevent brushwood or grass growing.

The level of drying and/or humidity is checked on the storage visually or using a special instrument for humidity measurement.
When checking visually, humidity lies near the desired value when tiny uniform longitudinal fissures appear along the whole length of pole showing there is no more free water in the wood mass.
Humidity measuring instrument then finally defines which poles are dry enough for further treatment which is impregnation.

2.1.1.6 Creosot

Creosot (coal tar destilate) provides longlife ofpoles.

Nowadays are used two types of Creosot :

- WEI – B and
- WEI – C.

Well known producer of Creosot is Rütgers Chemicals.

Used are also producer with similar products.

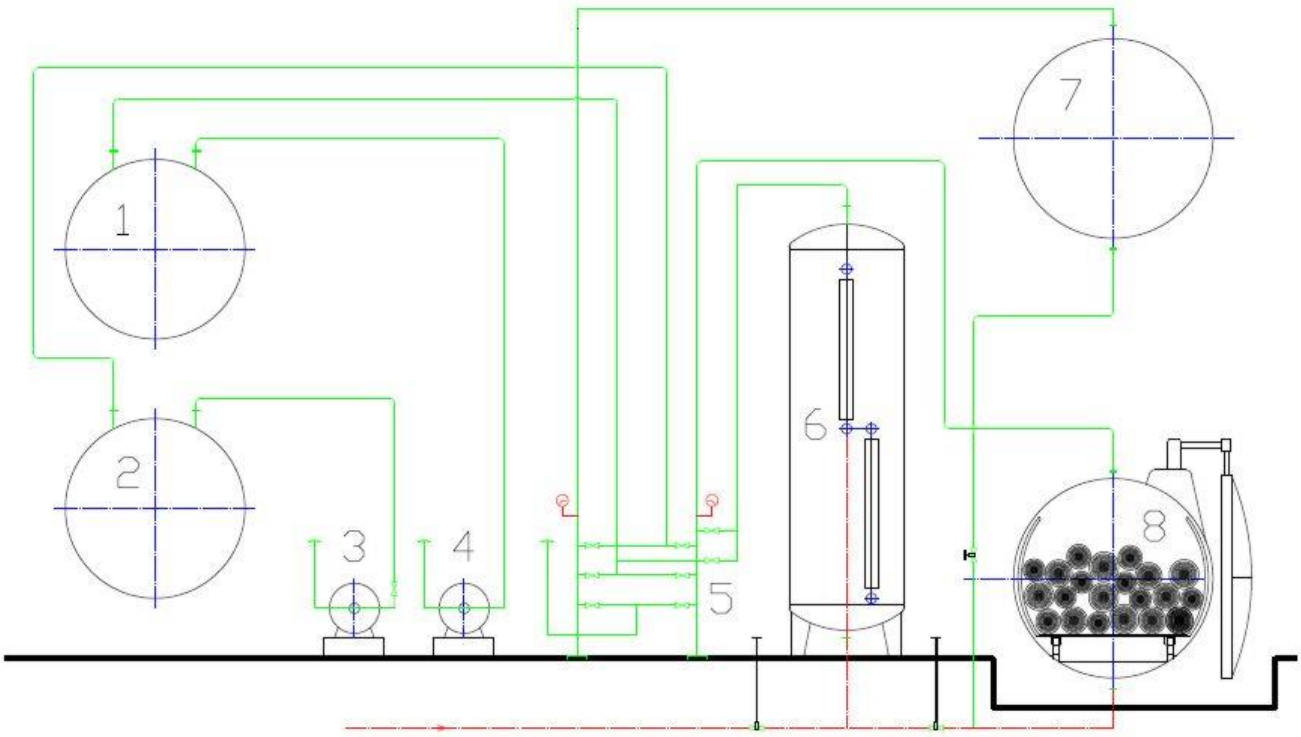
Eigenschaft	Einheit	Bestimmungs-methode	Typ A (DB)**	Typ B (M-Post)**	Typ C (GX/ GX-plus)**
Dichte (20°C)	[g/ml]	BS 144 App. B	1,04 - 1,15	1,02 - 1,15	1,03 - 1,17
Wassergehalt	[Vol.-%]	ISO 760	max. 1	max. 1	max. 1
Kristallisationstemp.	[°C]	EN 13991 App. A	max. 23*	max. 23*	max. 50
Wasserextrahierbare Phenole	[Gew.-%]	EN 1014-4	max. 3	max. 3	max. 3
Unlösl.Bestandteile	[Gew.-%]	BS144 App.G	max. 0,4	max. 0,4	max. 0,4
Siedeverlauf		EN 13991 App. B			
Destillat bis 235 °C	[Vol.-%]		max. 10	max. 20	--
Destillat bis 300 °C	[Vol.-%]		20 - 40	40 - 60	max. 10
Destillat bis 355 °C	[Vol.-%]		55 - 75	min. 70	min. 65
Benzo[a]pyren-Gehalt	[ppm]	EN 1014-3	max. 500	max. 50	max. 50
Flammpunkt PM	[°C]	EN ISO 2719	min. 61	min. 61	min. 61

2.1.1.7 Treatment of poles

The poles are treated with Creosote oil in a special chamber develop air pressure, oil pressure and underpressure. This process must ensure the Penetration of sapewood and required retention of oil which is 115kg/m3.
Treatment is in accordance with Empy – cell process also known as the Rueping process.
The moisture of wood before teratment must be lower or equal then 25% – 27%.
Measurment with electrical moisture detector.
Standards:

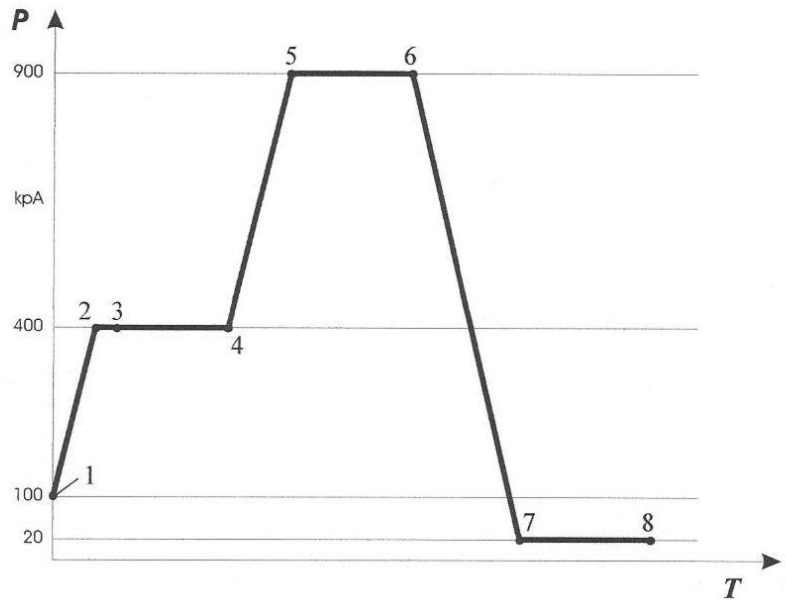
- Bs 913 and Bs 144
- EN 13991

PLAN OF IMPREGNATION EQUIPMENT



1 Condensator
2 Air tank
3 Compresor
4 Vacuum pump
5 Distributions pipes
6 Measurment
7 Preheating
8 Autoclave

OAK and PINE (PINUS SILVESTRIS)
DIN 68811:2007-01



Legende:
P - Pressure
T - Time

IMPREGNATION DIAGRAM

Process	**Pos. Nr.**	**Time *T* *min***	**Pressure *P* *kPa***
1. Air befor pressure	1 to 2	-	100 to 400
2. Air befor pressure - keep (hold)	2 to 3	15	400
3. Warming	3 to 4	120	400
4. Oil pressure	4 to 5	-	400 to 900
5. Oil pressure keep (hold)	5 to 6	90	900
6. Oil leave out	6 to 7	-	900 to 20
7. Air pressure keep hold (vacuum)	7 to 8	120	20
	TIME = 345 min = 5,75 Hours		

IMONT

2.1.1.8 Control of Impregnation Quality

The quantity of impregnation agent absorbed into timber mass caled retention is seen with the instrument used for control of impregnation process and with weighing.
Computer records show the whole process.
Immediately after impregnation ends, the depth of impregnated zone has to be additionally checked. This is carried out by drilling using the Pressler drill producing the ring samples which show the depth of impregnation penetration.

The ring samples must not be taken near knots or cracks. Six poles are tested from each impregnation process. If the sample shows that the desired impregnation depth is not obtained, we make a new borehole on the same pole 1 m away and make a 90 ° turn. If the second sample is sufficiently impregnated, the whole impregnation process is approved.
Should tree ring samples show that the depth of impregnated zone is too small, the process of impregnation has to be repeated.

2.1.1.9 Marking

Every pole become mark in accordance with customer requrements.

2.1.1.10 Storage of impregnated poles

Impregnated poles must be storage in the stocks as animpregnated poles.

2.1.1.11 Standards

In production of impregnated poles we consider the relevant standards stated in Report of Bureau Veritas (BS,ANSI,EN,..).

2.1.1.12 References

We have delivery Creosot impregnated wooden Poles to following countries:

- Syria,
- Jordan,
- Yemen,
- Kuwait,
- Lebanon,
- Libya.

BUREAU VERITAS
Certification

Certificate

Awarded to

IMONT d.o.o.

OTIŠKI VRH 156, 2373 ŠENTJANŽ PRI DRAVOGRADU, SLOVENIA

Bureau Veritas Certification Holding SAS – UK Branch certify that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standard detailed below

STANDARD

ISO 9001:2015

SCOPE OF CERTIFICATION

IMPREGNATION OF WOODEN PRODUCTS, PRODUCTION AND SALES OF IMPREGNATED WOODEN POLES

Original certification date: **19/06/2007**

Certification cycle start date: **10/06/2019**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **09/06/2022**

Certificate number: **SL22951Q** *Version number:* **01** *Revision date:* **03/05/2019**

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UKAS MANAGEMENT SYSTEMS

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IMONT

BUREAU VERITAS

Bureau Veritas Certification

IMONT d.o.o.

Otiški Vrh 156, 2373 Šentjanž pri Dravogradu, Slovenia

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 14001:2015

Scope of certification

IMPREGNATION OF WOODEN PRODUCTS, PRODUCTION AND SALES OF IMPREGNATED WOODEN POLES

Original cycle start date:	**09-09-2016**
Expiry date of previous cycle:	**08-09-2019**
Certification / Recertification Audit date:	**29-05-2019**
Certification / Recertification cycle start date:	**04-09-2019**
Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on:	**08-09-2022**

Certificate Number: **SI007128** Version: **1** Revision date: **04-09-2019**

Certification body address: 5th Floor, 66 Prescot Street, London E1 8HG, United Kingdom

*Local office: **Linhartova cesta 49A, 1000 Ljubljana, Slovenija***

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.

To check this certificate validity please call: +386 1 47 57 570

iMONT

POR-08-954/18 Date: 20.8.2018

INSPECTION REPORT
NO.: POR/08-954/18

For raw and impregnated poles of conifers:

Goods: IMPREGNATED POLES - PINE - *Pinus Sylvestris, L.*

Manufacturer: IMONT d.o.o., Slovenia

Wooden poles are produced in accordance with the following standards:

ANSI 05.1:2008, BS 1990-1 1984, BS 144 :1997, SIST EN 1310, SIST EN 1315-2, SIST EN 13183-1, SIST EN 13183-2, SIST EN 252, SIST EN 335-1, SIST EN 335-2, SIST EN 350-1, SIST EN 350-2, SIST EN 351-1, SIST EN 351-2, SIST EN 460, SIST EN 14229-2011, SIST EN 13991.DIN 68800 :2011

Inspection and supervision of production

Bureau Veritas, d.o.o. performs regular inspections of wooden poles before impregnation (Wood Preparation and Grading), inspection of impregnation process, inspection of devices for impregnation and inspection after Impregnation (penetration and retention).

Impregnation is performed according to Rüping method of empty cells. Wood is impregnated by pressurised creosote and vacuumed. After the process of impregnation, cell walls are impregnated, but interiors of cells is empty.

We perform inspection of poles which are treated with Creosote at Imont production plants in Europe.

Bureau Veritas, d.o.o.
Wood inspection departmenzt
Nace Kregar B.sc.

Bureau Veritas, d.o.o. | Linhartova cesta 49a, 1000 Ljubljana, Slovenija
www.bureauveritas.si | e: info@si.bureauveritas.com | t: + 386 (0)1 4757 600

Zavod za gradbeništvo Slovenije
Slovenian National Building and Civil Engineering Institute
Dimičeva ulica 12, 1000 Ljubljana, Slovenija
http://www.zag.si, e-mail: info@zag.si

Ljubljana, 25.02.2013

IMONT d.o.o.
Otiški vrh 156

2373 Šentjanž pri Dravogradu

(g. Maksimiljan Uranšek)

Subject: Testing of wood poles according to EN 14229:2010

To whom it may concern,

Zavod za gradbeništvo Slovenije – ZAG (the Slovenian National Building and Civil Engineering Institute), Dimičeva ulica 12, 1000 Ljubljana, hereby confirms that has in year 2005 performed bending tests of wood poles according to EN 12509:2002 (*Timber poles for overhead lines - Test methods - Determination of modulus of elasticity, bending strength, density and moisture content*) for company IMONT d.o.o. Results of tests (modulus of elasticity, bending strength, density and moisture content) are presented in the report P 963/05-640-1 on tests of IMONT impregnated timber poles (length 8 m), issued by Slovenian National Building and Civil Engineering Institute.

We also confirm that ZAG Laboratory for Structures has all equipment needed for performing mechanical tests according to EN 14229:2010 (*Structural timber - Wood Poles for overhead lines*). We will be pleased to perform any test according to EN 14229:2010 for company IMONT d.o.o. on their request.

Slovenian National Building and Civil Engineering Institute is also Certification and Inspection Body, pursuant to article 10 of the Construction Products Directive 89/106/EEC – number of Notified Body: NB 1404. Certification and inspection relates to various structural timber products, among others also for the wood poles for overhead lines according to EN 14299:2010.

Prepared by:
Tomaž Pazlar, Ph.D. (Civ Eng.)

ZAVOD ZA GRADBENIŠTVO SLOVENIJE LJUBLJANA 13

Head of Section for Metal, Timber and Polymer Structures:
Iztok Klemenc, Ph.D. (Civ Eng.)

IMONT

50
FINLAND
Lake Onega
Lake Ladoga
Trondheim
Tórshavn
Faroe Islands (DENMARK)
SWEDEN
Gulf of Bothnia
Tampere
Shetland Islands
Helsinki
St. Petersburg
Gulf of Finland
Gävle
Bergen
Oslo
Stockholm
Åland Islands
Tallinn
Orkney Islands
ESTONIA
RUSSIA
Hebrides
Skagerrak
Göteborg
Gotland
Riga
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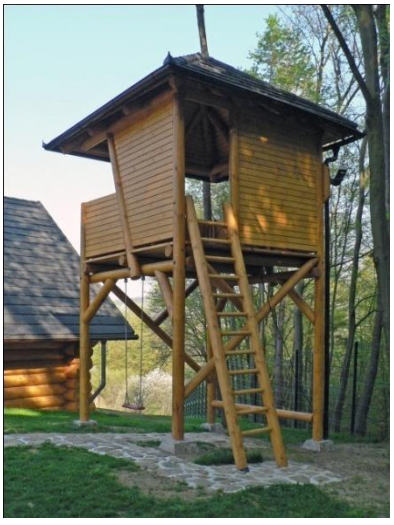
Madrid
VATICAN CITY
Thessaloníki
TURKEY
Naples
ALB.
Valencia
Sardinia
Tyrrhenian Sea
Ioánnina
Aegean Sea
Corfu
Balearic Islands
GREECE
Athens
Sevilla
Ionian Sea
Mediterranean Sea
Palermo
Peloponnisos
Málaga
Sicily
Rhodes
Gibraltar (U.K.)
Algiers
Tunis
Scale 1:19,500,000
Crete
Melilla
Lambert Conformal Conic Projection

2.2 Other Products Made of Wood

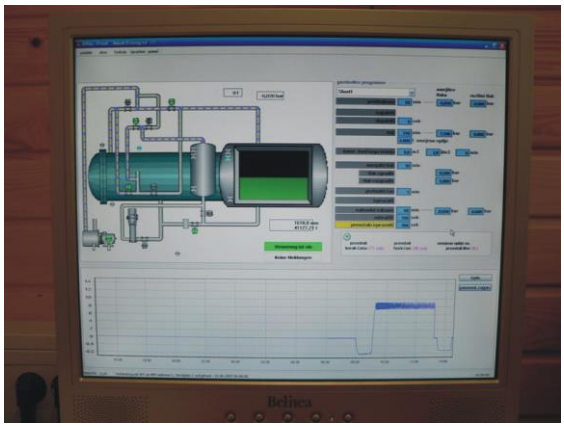
1. Garden furniture
2. Palisades
3. Fence for various purposes
4. Wood noise barriers on roads
5. Play equipment for children
6. Various wood products for construction
   - facades
   - bridges
   - roofing
   - support walls
   - assembly facilities.



3. Production Plants

Imont production plants:

1. Dravograd:
   - Main Seat
   - Production plant:
     - peeling equipment,
     - storage area cca 30000 m2,
     -impregnation plant:
     - 2 x autoclave 1,8 x 25 m
     - 1 x drying chamber 1,8 x 25 m



2. Maribor:

-impregnation plant:

- 1 x autoclave 2 x 25 m

3. <u>Kozmin:</u> (Associated company)

- Production plant:
  - peeling equipment,
  - storage area cca 95000 m2,
  - impregnation plant:
  - 2 x autoclave 2 x 30 m

The total production capacity is about 65.000 m3 impregnated wood poles per year.