



化学沉锡销售介绍

Jan 2020

我们的理念

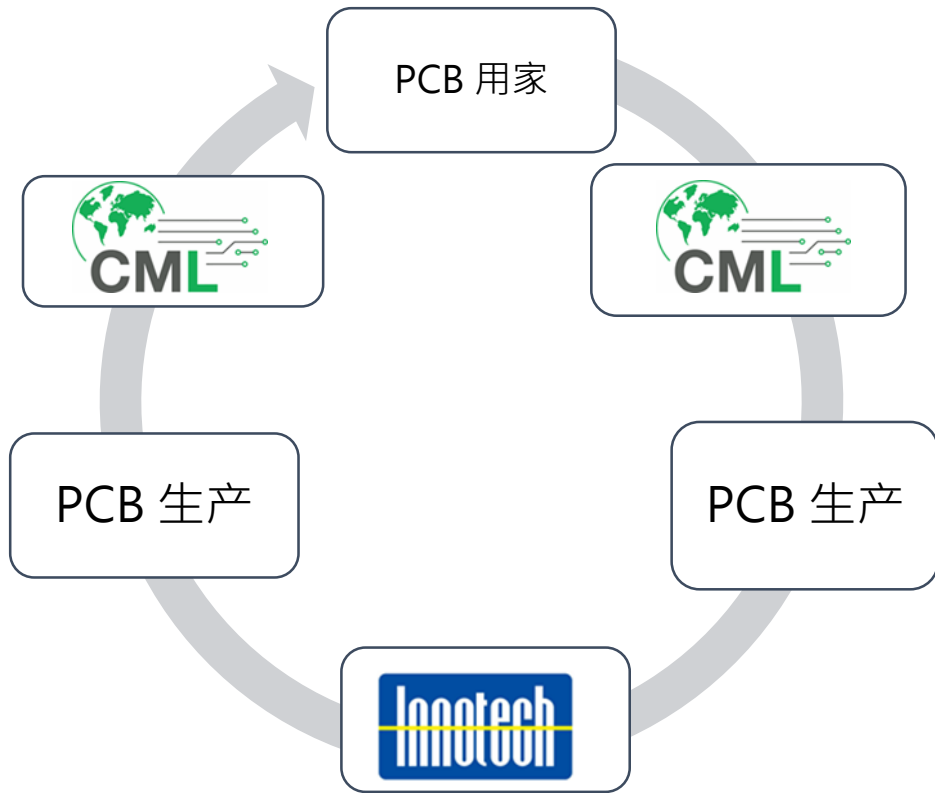
- CML的愿景是追求卓越并提供最佳的客户服务，我们永远不会停止寻找最优质客户服务方案;
- 同时, 我们不仅是要质量控制，还与我们的材料供应商密切合作，亦考虑延伸到技术开发供应链的一部分;
- 经过多年与我们的化学沉锡供应商 INNOTECH 密切合作，我们决定走出重要一步，成立 CML Chemistry 合资企业。

亮点聚集在一起

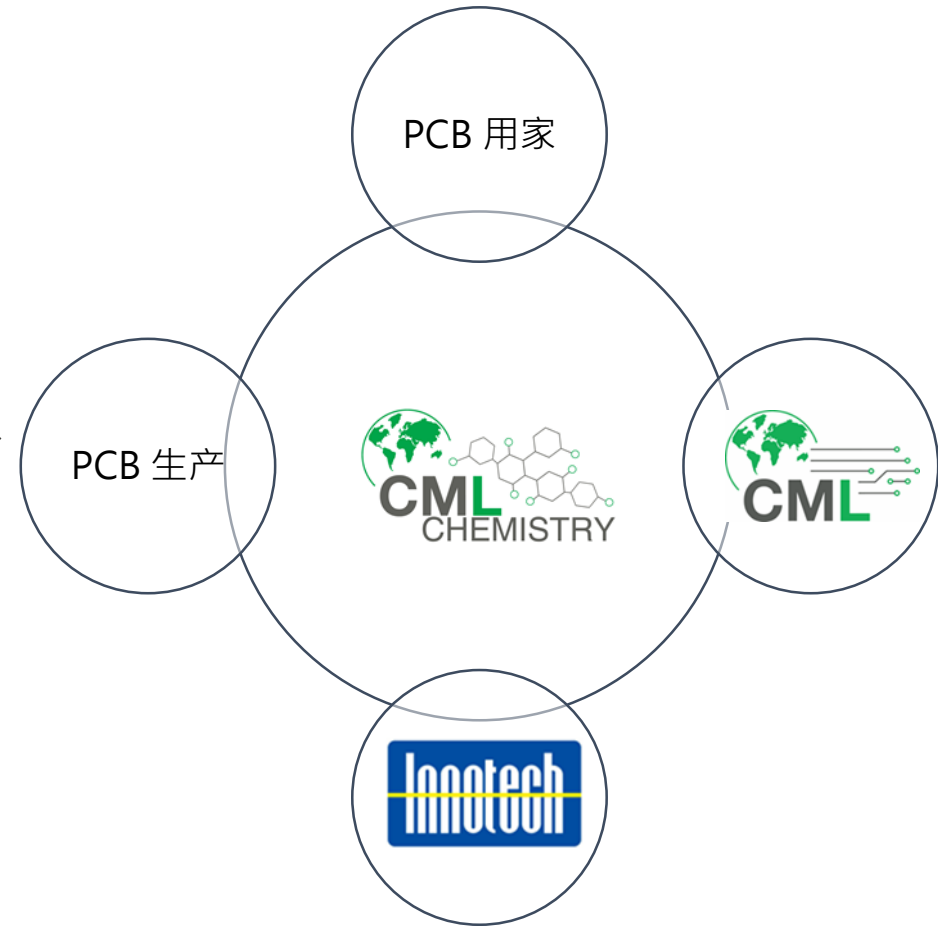
- 借着CML与客户的直接联系，可得到市场第一手资料和需求;
- INNOTECH在化学沉锡表面处理方面的专业技术知识。



标准模式



升级模式



我们的网络和历史



CML欧洲
2001年成立于德国



我们位于
16个城市和12个国家



全球员工 600+



可多种语言交谈



每月生产能力1,000,000平方米

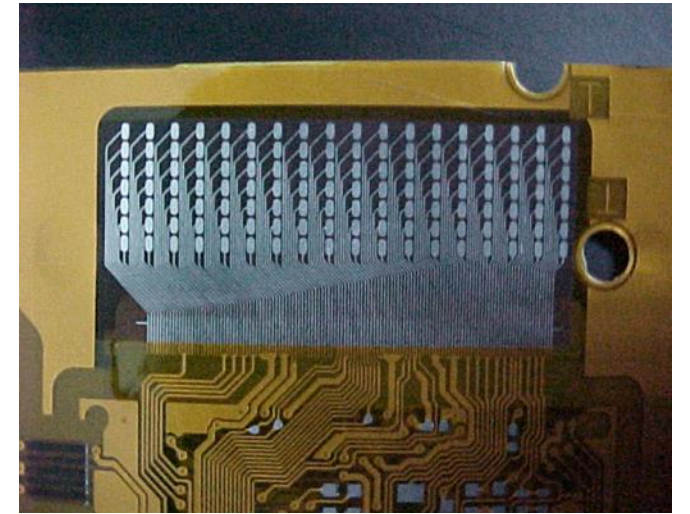


全球生产基地分局
我们的工厂星联位于四川省

INNOSTAN[®] CT-15是一种浸入式电镀技术，通过置换反应机制在铜表面产生0.8至1.2 μm 纯锡的致密沉积层。

它是无铅喷锡（LF HASL）工艺的理想替代品。由于市场对细间距板的需求不断增长及均匀度要求不断提高，且对具有成本竞争力的表面处理以及优异的可焊性的需求正在增加。

INNOSTAN[®] CT-15绝对符合上述要求，而且可应用于水平和垂直模式操作。



Partnership with



INNOSTAN[®] CT-15产品系列包含:

- **INNOSTAN[®]** CT-16浸溶剂用于垂直操作
- **INNOSTAN[®]** CT-15M用于主浴的化学沉锡溶液
- **INNOSTAN[®]** CT-15B化学沉锡补充液
- **INNOSTAN[®]** CT-15C化学沉锡光亮剂溶液

其他必要化学品包括:

- AC-202酸性清洁剂
- ME-801微刻添加剂
- CC-150铜面调整剂
- NA-10中和剂
- TA-90锡面保护剂

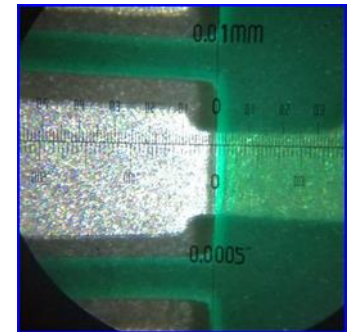
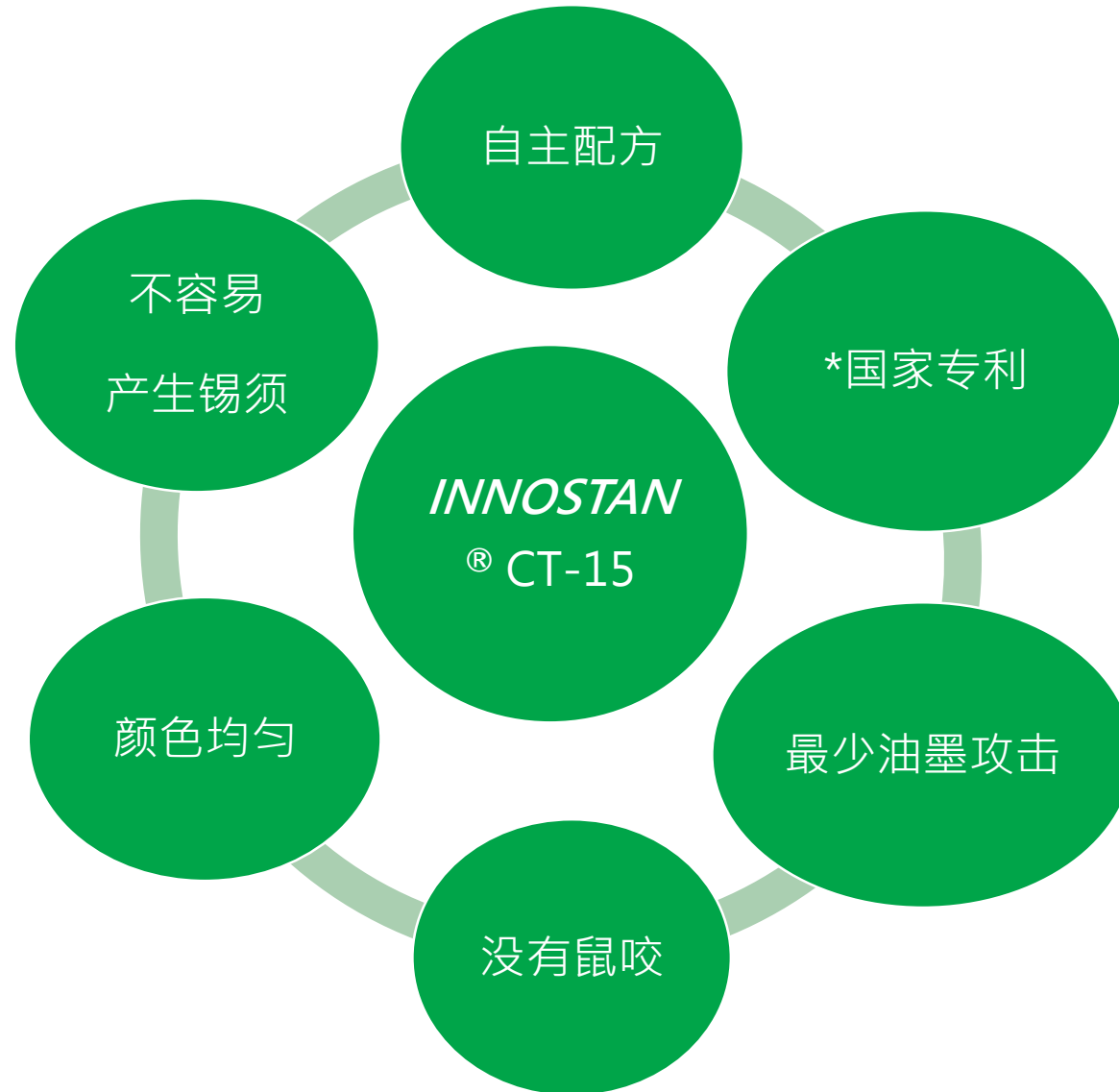
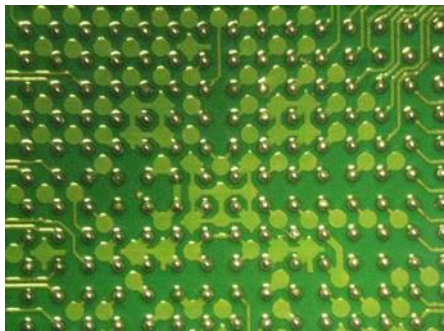
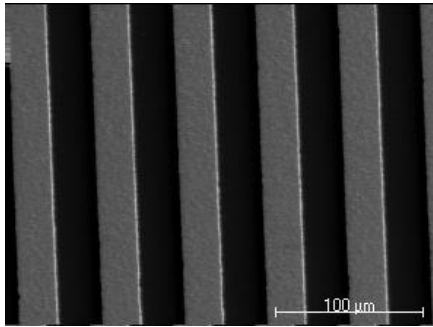
Partnership with



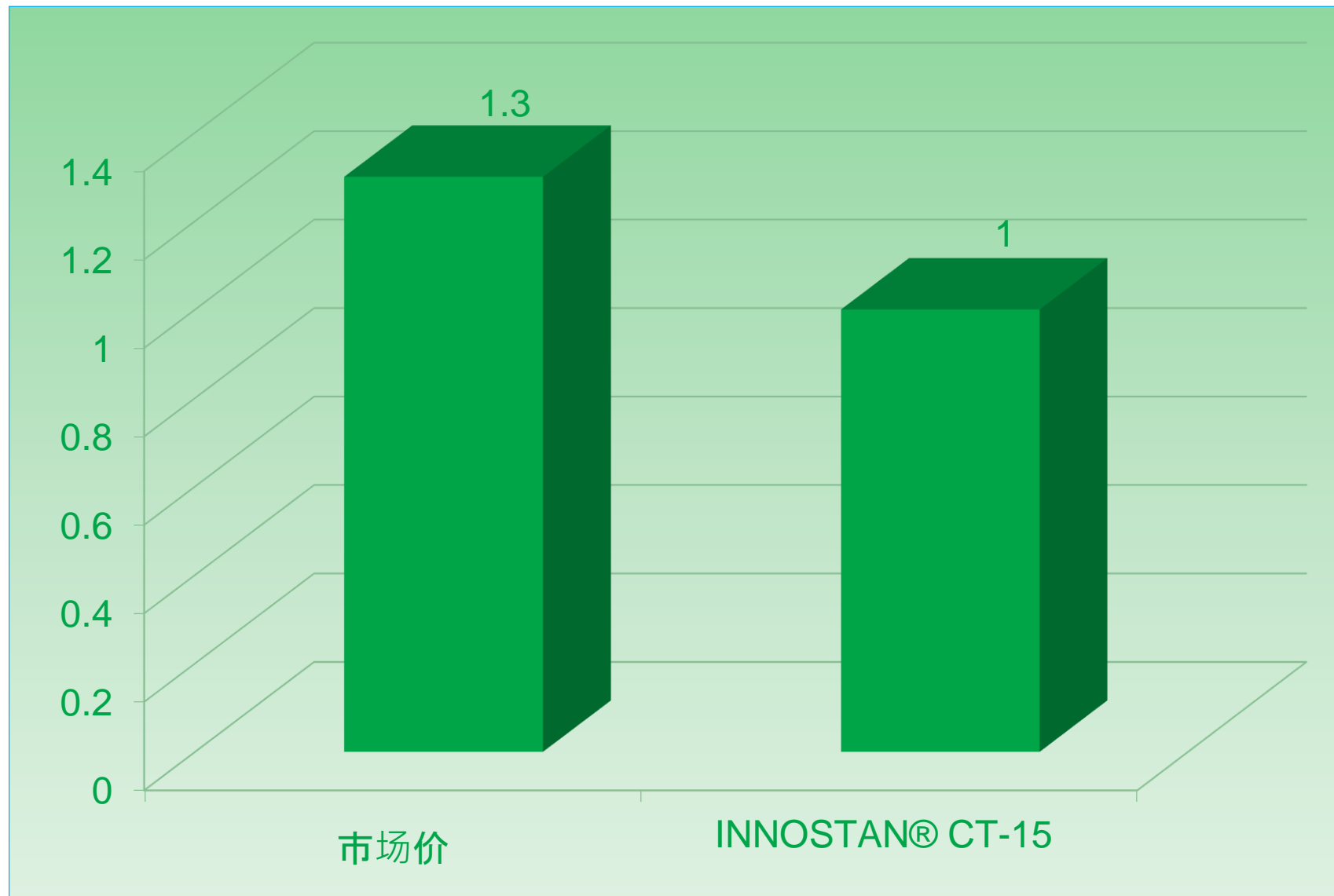
化学沉锡的质量比较

| 项目 \ 供应商 | * <i>INNOSTAN</i> [®] CT-15 | 竞争者A | 竞争者C |
|--------------|---|-----------------------|-----------------------|
| 油墨攻击 | 最低 | 有 | 有 |
| 变色不良 | 没有 | 有 | 有 |
| 表面均匀度 | 优秀 | 还可 | 还可 |
| 离子污染 | 0.015ug/cm ² | 0.5ug/cm ² | 0.7ug/cm ² |
| 锡须 | 接近于零 | 有 | 有 |
| 可焊性(6x无铅回流焊) | 通过 | 没有通过 | 没有通过 |
| 鼠咬 | 没有 | 有 | 有 |

*受控操作参数



*申请中



备注：一般惯例并通过价格谈判最终确定

认可及证书



PCB Commodity Team Members,

We have concluded that Gloryfaith (Jiangmen) PCB Co., Ltd has fulfilled the requirements of 8 Layers, C-7000 class B Lead free Immersion Tin surface finish qualification testing. Per Test ID # Q31320, they have passed the requirements of the following tests:

| | | |
|---------------|------------------------------|---------------------------------|
| Q-1000-127, B | Surface Ionic Contamination | (CLASS A, B passed with Q31320) |
| Q-1000-202, D | Solderability | (CLASS A, B passed with Q31320) |
| Q-1000-232 | Conformal Coat Compatibility | (CLASS A, B passed with Q31320) |

With the above results, Gloryfaith (Jiangmen) PCB Co., Ltd is qualified to build circuit boards for Delphi with the following formulation:

| | |
|---------------------------------|---------------------------|
| Maximum number of copper layers | 8L (i.e., DK128836 Rev B) |
| Maximum PCB thickness | .062 Inch (1.6mm) |
| Final Surface Finish | Immersion Tin |
| Chemical of Immersion Tin | Innotech CT-15M |
| C-specification | C-7000 class B |

All parts submitted to Delphi for Production Part Approval Process (PPAP) MUST reference a qualification "Test ID" number on the DE FOR 406.02 (R450) form. Any part fabricated by Gloryfaith (Jiangmen) PCB Co., Ltd that utilizes the Q31320 Test ID number, MUST follow the materials and processes used in this test group.

This information as to "qualification" does not preclude any tests or experiments that may be deemed necessary by the end user or their supplying global product lines. Also, this information does not preclude the requirement to have copies of the Process Flow, Process Control, PFMEA, applicable Cage R & R, and Capability Studies filed with the appropriate Delphi Advanced Quality Engineering organization.

Please contact me if there are any questions or concerns.

Thanks,

Mike Li
Component Engineer
16 March 2015

Delphi Electronics and Safety
Delphi China Technical Center
Floor B-1, No. 118, De Lin Road
Pudong, Shanghai, China 200131
Tel: +86 21 2896 5681
Fax: +86 21 5046 3903
Email: Mike.li@delphi.com



Subject: Immersion Tin Material Approval

Manufacturer: INNOTECH
Brand: INNOSTAN
Model Number: CT-15

Qualification tests have been performed on sample boards produced under supervision of CML. The immersion tin finishing was applied on a vertical line at Starteam plant. All sample boards were tested following EGO's internal quality regulations.

Beside of the sample qualification test, an onsite Audit of the Starteam production facility was performed with positive results.

After reviewing and analyzing the Sample evaluation results, EGO concluded that INNOTECH Immersion Tin product INNOSTAN CT-15 is qualified for use on EGO printed circuit boards.

The above statement does not release the producing facility from its responsibility to plan and execute its own process qualification of INNOSTAN CT-15.

With Best Regards

Company: E.G.O. Elektrogerätebau GmbH

Name: Dietz, Andreas

Title: Vice Director QM Supplier

Signature: *[Handwritten Signature]* /0905

Date: 09.08.2019

Murrelektronik GmbH
P.O. Box 1165 | 71567 Oppenweiler | GERMANY
Falkenstraße 3 | 71570 Oppenweiler | GERMANY
Phone +49 7191 47-0 | Fax +49 7191 47-491000
www.murrelektronik.com
info@murrelektronik.com



To Whom it may concern

Subject: Immersion Tin Material Approval

Manufacturer: INNOTECH
Brand: INNOSTAN
Model Number: CT-15

Qualification tests have been performed on sample boards produced under supervision of CML. The immersion tin finishing was applied on a vertical line at Starteam plant. All sample boards were tested following Murrelektronik's internal quality regulations.

Beside of the sample qualification test, an onsite Audit of the Starteam production facility was performed with positive results.

After reviewing and analyzing the Sample evaluation results, Murrelektronik concluded that INNOTECH Immersion Tin product INNOSTAN CT-15 is qualified for use on Murrelektronik printed circuit boards, included those intended for Automotive applications.

The above statement does not release the producing facility from its responsibility to plan and execute its own process qualification of INNOSTAN CT-15.

With Best Regards

i.A. Stefan Pitsch
Supplier Quality Manager (SQM) | QM

[Handwritten Signature]

Oppenweiler, the 30th of July 2019

认可及证书



To: INNOTECH (Shenzhen) Co., Ltd.

Subject: Material qualification

In order to evaluate the performance of immersion tin chemistry, CML conducted the qualification of following material:
 Manufacturer: INNOTECH
 Brand: INNOSTAN
 Model Number: CT-15

Qualification tests have been performed on sample boards (FR4 base material and green matt solder mask), produced under supervision of CML.
 The immersion tin finishing was applied on a horizontal line at Innotech plant and on a vertical line at StarTeam plant. In addition, sample boards were produced with two different non Innotech immersion tin products.
 All sample boards were tested by SGS-CSTC Ltd. Shenzhen Branch, an independent qualified laboratory.

The following qualification tests were done based on IPC-4554:

- 1.) Tin Thickness Test (X-Ray) acc. ISO3497
- 2.) Tin Thickness Test (Coulometric) acc. ISO 2177-2003
- 3.) AES Test acc. ASTM E 827-08 / 1078-14 / 1829-14 / 996-10 / 1127-08(2015)
- 4.) Solderability Dip Test acc. IPC J-STD-003C-WAM1-2014 Sec. 4.2.1
- 5.) Solderability Float Test acc. IPC J-STD-003C-WAM1-2014 Sec. 4.4
- 6.) Reflow Soldering Test acc. IPC J-STD-003C-WAM1-2014 sec. 4.2.3
- 7.) Wetting Balance Test acc. IPC J-STD-003C-WAM1-2014 sec. 4.3.1
- 8.) Tin Whisker Evaluation Test JESD 22-A121:2005
- 9.) Ionic Contamination Test acc. IPC-TM-650 No. 2.3.25D:2012
- 10.) Surface Insulation Resistance (SIR) Test acc. IPC-TM-650 No. 2.6.3.3B:2004
- 11.) Immersion Tin Adhesion Test acc. IPC-TM-650 No. 2.4.28.1F:2007
- 12.) SM Adhesion Test acc. IPC-TM-650 No. 2.4.28:1997
- 13.) SM Pencil Hardness Test acc. IPC-TM-650 No. 2.4.27.2a:1988 & ASTM D3353-05 (2011)
- 14.) SM Resistance to Solvent Test acc. IPC-TM-650 Method 2.3.4.2.

After reviewing and analyzing the results of SGS test Report No GZRL2018103504, CML concluded that INNOTECH Immersion Tin product INNOSTAN CT-15 is qualified for use on CML printed circuit boards, included those intended for Automotive applications.

The above statement does not release the producing facility from its responsibility to plan and execute its own process qualification of INNOSTAN CT-15.

Name: Markus Bodemer
 Title: Quality & Engineering Manager
 Date: 2/14/2019
 Signature:

CML Europe GmbH
 Postfach 1252, 76334 Waldbronn
 Im Ermisgrund 8, 76337 Waldbronn
 Tel. 0 72 43 / 5309 - 30
 Fax 0 72 43 / 5306 - 3 59

CML Europe GmbH | Handelsregister | Kreditinstitut | SWIFT-BIC | IBAN EUR | IBAN USD
 Amberg-Weiden | Amtsgericht Weiden | Commerzbank AG | COMDE333 | DE33 2512 0510 0010 0010 0010 0010
 Mainz-Hoch | HRB 302510 | HRE 302510 | Deutsche Bank AG | DEUTDE33 | DE25 1203 0310 0001 0001 0001 0001
 St. No. 3119042554 | VHS-19F-02217356407 | HFGC Finance & Business AG | HFGCDE33 | DE44 2512 0510 0010 0010 0010 0010

| | | |
|---|--|---|
| HELLA KG Hella & Co. Hella Group | Technical Bulletin – Research and Development – | Date: 2017-12-21 |
| | Subject: Material Approval for Immersion Tin Line (PCB 200.983-01/02) General Approval, Ref: PCB's from Company CML (plant JST), populated at sub-supplier | No.: 170604 Page 1 of 2 Author: J. Krsnak Org. unit/Gr.: L-DLT-OMTE Enclosures: 0 |

Material Approval of Printed Circuit Boards, General Approval for EMS

Order No.
 PCB-Part number: 200.983-01/02
 Manufacturer Code, Datecode: [not available], 18/16,
 Manufacturer of PCB: Company JST
 Sold by company CML,
 Base material of PCB: mid-Tg FR4, S1000H, Company Shang Yi
 Solder Mask (SM): YSR-900 GM01 (green), Company Yeyo
 Surface finish: Immersion tin: CT-15, Company Innotech
 PCB-Technology: doublesided, PTH

Result:

The surface finish which is described in this report in the presented quality is approved for Hella production.

PCB with other part numbers but same approved materials are approved for Hella production too.
 Delivery is allowed to EMS supplier only, not to Hella directly. (Electronic Manufacturing Service)

Reason Conditions Note:

- use the immersion tin with the whisker reducing components !

Important Note:

In case of changes of the PCB or changes in the way of production of the PCB (i.e. a new kind of adhesive) this PCB has to be approved again.

| | | |
|---|---|------------------|
| HELLA KG Hella & Co. Hella Group | Subject: Material Approval for Immersion Tin Line (PCB 200.983-01/02) General Approval, | Date: 2017-12-21 |
| | No.: 170604 Page 2 of 2 | |

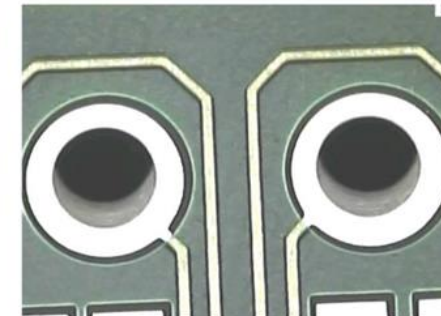
The PCB's were tested according to:

| | | | |
|------------------------------------|------------------------|------------|--------------------------------|
| Visual inspection | HN 67036 2013, P.6.1 | acceptable | (1) |
| Adhesion of surface finish | HN 67036 2013, P.6.2.7 | acceptable | (1) |
| Ionic contamination | HN 67036 2013, P.6.4.1 | passed | (3) [0.22 µg/cm ²] |
| Thickness of surface finish | HN 67036 2013, P.8.1.3 | passed | (1) |
| Tin whisker growth: delivery state | HN 67036 2013, P.8.1.3 | passed | (1) |
| Tin whisker growth: after 6 month | HN 67036 2013, P.8.1.3 | acceptable | (1) |
| Solderability | HN 67036 2013, P.8.2 | acceptable | (1) |
| Susceptibility to soldering heat | HN 67036 2013, P.8.3 | acceptable | (1) |
| Reflow process | HN 67036 2013, P.9 | passed | (1) |

- Further tests for Approval see
- (1) Report of JST: New immersion tin line (CML)
 JST New Immersion Tin Evaluation Report 11.12.2017
 Process flow of immersion tin included.
 - (2) TMKrs170404
 - (3) TMKrs170403
 Report of green solder mask Yeyo YSR-900GM01

Details:

The thickness of surface finish - CML report (1):
 Min: 40,26U" (1,023µm), Max: 45,13U" (1,146µm)



Picture 1: after 6 month storage: no whisker observed (1, page 20)

Report from CML (JST):

可根据要求提供
 SGS评估报告，
 SGRL201804030_03，
 日期为2018-06-28。

Innotech 外包加工服务



沙井



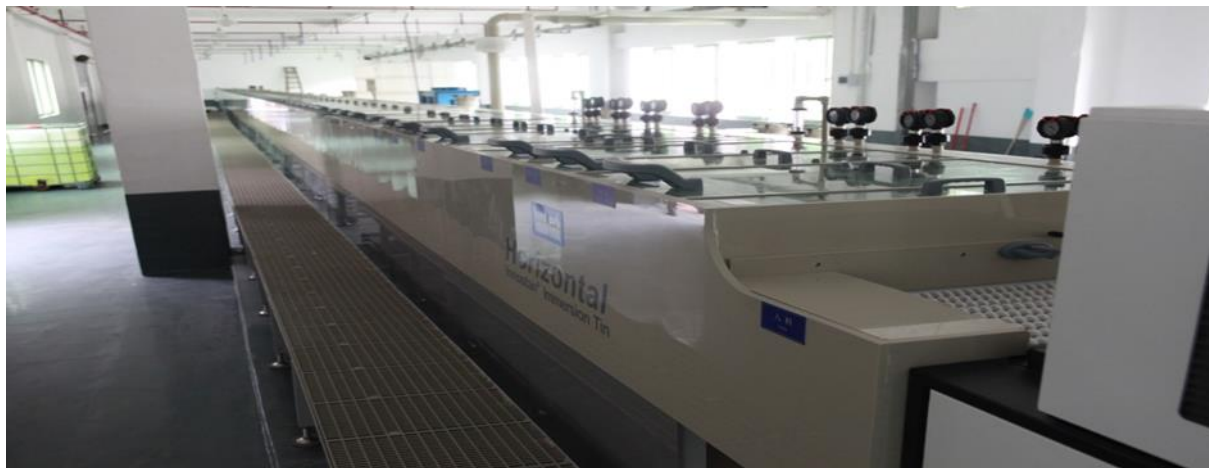
珠海

为了应对市场需求，除化学药品外，我们还提供水平沉锡线。它由我们的团队设计和制造。我们的生产系统不仅与 *INNOSTAN*[®]CT-15 系统完美匹配，而且还可提高整体效率和生产力。



独有优势及特色有:

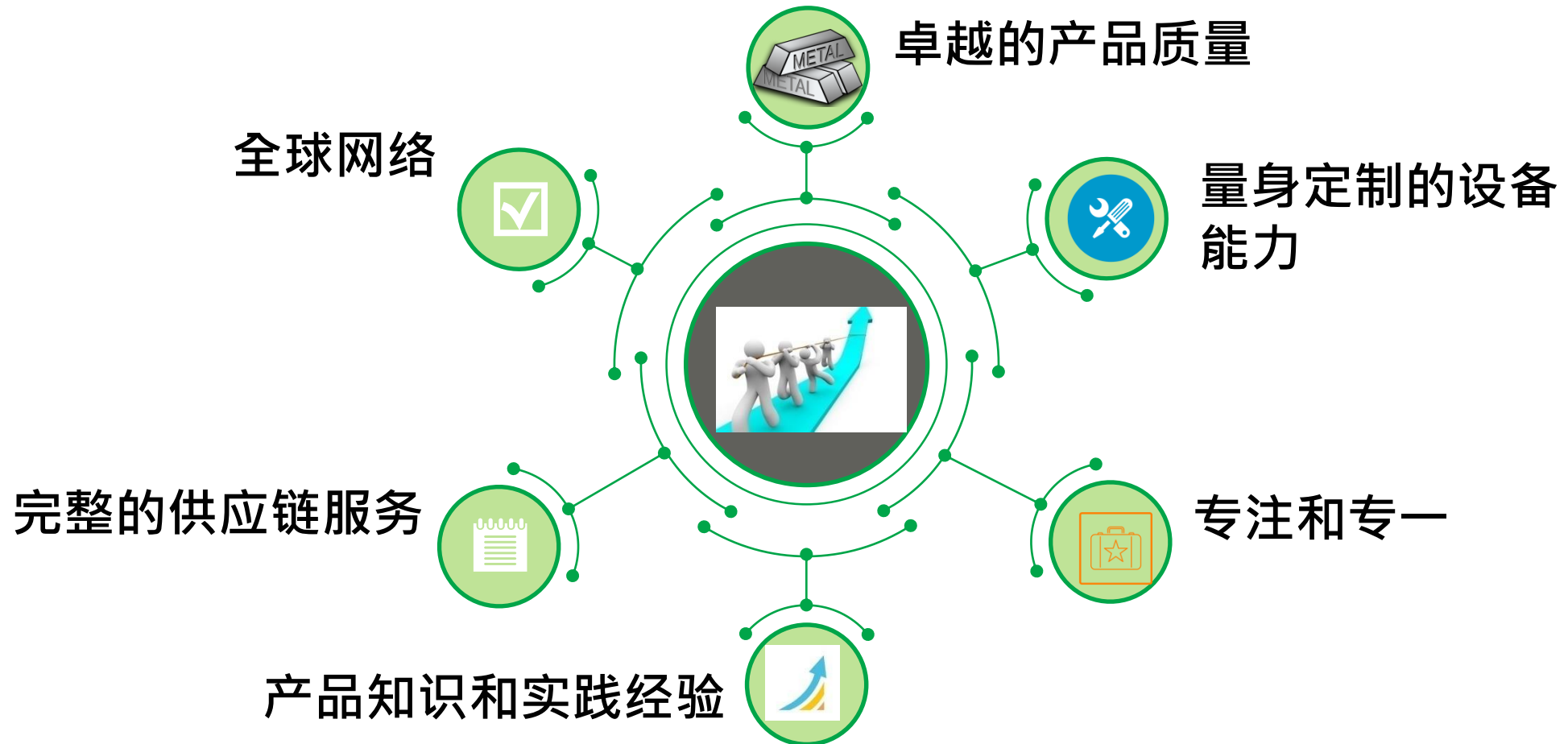
- 模组设计包含UV机和喷射磨板装置;
- 稳定传输滑动结构系统设计减少热膨胀和收缩公差的风险;
- 主锡槽(特长)使用独特的齿轮传动箱实现高生产力;
- 在线分析系统带有自动配料设计, 可持续监控化学品状况;
- 确保成品板的最佳质量和可靠性;
- 简单的直线外观设计, 没有复杂的辅助设施, 如铜再生单元和锡减少系统。



Walchem在线分析系统







PCB Factories

- KinWong Group
- Techwise (HuiYang)
- 3-Sun (FuQing)
- Glory Faith (JiangMen)
- Elitegroup (ShenZhen)
- TongJiang (HuiZhou)
- APCB (ShenZhen)
- BTI(Guangzhou)
- ChinaEagle (HuiZhou)
- Skytech (Guangzhou)
- Dynamic(KunShan)
- Welfare (ShenZhen)
- EPPCB (QingYuan)
- SuHang (KunShan)
- SunTak (Jiangmen)
- JST (Jiangyou)
- Gainbase (ShenZhen)

PCB End-Customers

- Delphi
- Hella
- Samsung
- HP-Malaysia
- Siemens
- Flextronics
- Sanyo
- Sony
- Zollner
- Murrelektronik
- Seuffer
- Sero
- Deltec
- Eberspaecher
- Huf
- EGO

Address:

Units 6-8, 11/F., Hilder Centre, 2 Sung Ping Street,
Hung Hom, Kowloon, Hong Kong

香港九龍紅磡崇平街 2 號, 富德中心11樓 1106-08室

T +852 2334 8225

Albert Kwok

Senior Business Development Manager
MP: + 852 6229 9552/+86 147 1576 1661
albert.kwok@cml-chemistry.com

Andy Wen

Sales Manager
MP: +86 136 0975 7551
andy.wen@cml-chemistry.com

Florian Wollitz

Business Operation Manager
MP: +852 9578 6970
florian.wollitz@cml-chemistry.com

Steven Kwok

Technical Manager
MP : +86 139 2280 6289
steven.kwok@cml-chemistry.com

Ben Ting

Marketing Director
MP: +852 9385 6648/+86 135 3060 1382
ben.ting@cml-chemistry.com



More than a **manufacturer**

✉ albert.kwok@cml-chemistry.com

📍 <https://cml-globalsolutions.com/contact-us/>



Let's begin by understanding your requirements and expectations