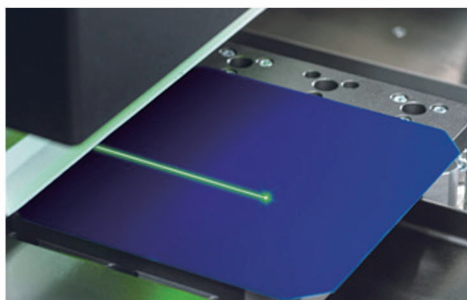
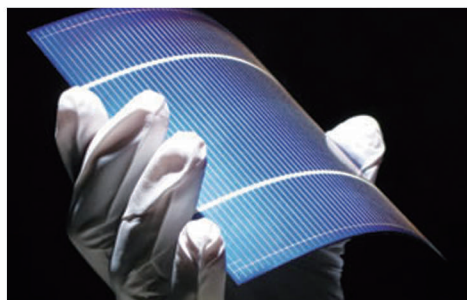


第三届金刚线切片与黑硅技术论坛

3rd Diamond Wire Sawing and Black Silicon Technology Forum

常州 Changzhou | 2018.9



主办
Organizer



ASIACHEM[®]





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Changzhou

会议背景

基于单位产能硅耗少、切割效率高、辅材成本低和可切割薄片等优势，金刚线切割多晶硅片与黑硅技术的组合正在成为多晶硅电池的标配。2018 版 ITRPV 数据显示，2025 年 P 型多晶电池全球市场份额约为 39%，与 P 型单晶电池相当。金刚线切割多晶硅工艺和黑硅技术的持续研发与优化，对于多晶电池与组件提升性能，强化市场竞争力显得尤为重要。

由于 2018 光伏新政的影响，金刚线产能严重过剩，技术水平低的金刚线企业将被淘汰，有能力控制金刚线成本并确保质量的企业将在行业复苏后占据大量市场份额。金刚线切割工艺正在向金刚线细线化、硅片薄片化和切割过程智能化等方向发展，这就需要更优质的金刚线与更高性能的切割机台相匹配。

金刚线切割的多晶硅片反射率高，细线化条件下的硅片表面将更光亮、损伤层更浅。而制绒添加剂技术、制绒预处理技术或黑硅技术则可以解决金刚线切割多晶硅片制绒困难的问题。金刚线切割多晶制绒添加剂技术不改变原有设备，增加专用添加剂，降低反射率至接近常规。而黑硅技术则可以优化陷光效果，提高多晶太阳能电池效率。黑硅技术分为干法黑硅与湿法黑硅两种技术路线，各具优势，都已实现批量化生产，并可进一步升级优化。

亚化咨询统计显示，2018 上半年中国黑硅产能已达 25GW。黑硅技术极具发展潜力，黑硅单面制绒可以使

产能翻倍，进一步降低成本；黑硅与 PERC、SE 和 MWT 等技术的组合可以进一步提升多晶电池的量产效率；黑硅电池也可以应用双面发电、多主栅、半片电池与叠瓦组件技术；随着黑硅配套导电浆料与金属化技术的进步，电池效率有望持续提升。此外，黑硅技术也可用于单晶硅片制绒，尤其是铸锭单晶硅片制绒的最佳技术选择。

第三届金刚线切片与黑硅技术论坛将于 2018 年 9 月 12 日在江苏常州召开。会议将探讨光伏行业展望与单晶电池和多晶电池竞争力分析，金刚线切割工艺和黑硅技术市场前景，金刚线切割工艺细线化、薄片化和智能化发展，干法黑硅与湿法黑硅技术升级与降本方向，黑硅技术在单晶硅片和铸锭单晶的应用前景，适用于黑硅电池的导电浆料与金属化方案，黑硅电池与其他提升效率技术的组合应用等。

日程安排

2018 年 9 月 11 日 周二

16:00~21:00 会前注册

2018 年 9 月 12 日 周三

09:00~12:30 演讲报告

12:30~14:00 自助午餐与交流

14:00~18:30 演讲报告

18:30~20:00 招待晚宴

会议主题

- 光伏行业展望与金刚线切片工艺和黑硅技术市场前景
- 金刚线切割智能化发展与生产效率的提升
- 电镀金刚线与树脂金刚线优势分析与细线化
- 金刚线切割薄片化趋势与碎片率控制
- 金刚线切割冷却液与硅粉回收利用
- 金刚线切割多晶硅片制绒技术比较——添加剂、黑硅与预处理
- 干法黑硅工艺设备优化与产能提升
- 槽式与链式湿法黑硅批量生产经验与环保解决方案
- 湿法黑硅进一步降本方向——单面制绒
- 湿法黑硅技术升级——提升溶液寿命，拓宽工艺窗口和简化工艺设备
- 无金属催化黑硅工艺技术研发与应用
- 适用于黑硅电池的导电浆料与金属化方案
- 黑硅技术在铸锭单晶和单晶硅片的应用
- 黑硅电池与其他提升效率技术的组合应用——PERC、SE 与 MWT
- 黑硅电池应用于双面发电、多主栅、半切与叠瓦组件
- 解决黑硅电池 CTM 损失——封装工艺与组件材料优化



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Background

Based on the advantages of low silicon consumption, high cutting efficiency, low auxiliary material cost and cutting thin silicon wafers, the combination of diamond wire sawing (DWS) multi-Si wafer and black silicon technology is becoming the standard for multi-Si solar cell. ITRPV 2018 shows P-type multi-Si cell global market share is about 39% in 2025, which is comparable to P-type mono-Si cell. The continuous R&D and optimization of DWS process and black silicon technology is particularly important for improving the performance and strengthening market competitiveness of multi-Si cells and modules.

Due to the impact of China's 2018 PV New Policy, the diamond wire is seriously over-capacity. Enterprises with low technical level will be eliminated, with the ability to control the cost and ensure quality will occupy a large market share after the industry recovers. DWS process is developing towards the thinning of diamond wire, thinning of silicon wafer and intelligent cutting process, which requires a better quality diamond wire to match the higher performance cutting machine.

DWS multi-Si wafer has a high reflectance, and the surface of silicon wafer cutting by thinner diamond wire is brighter and the damaged layer is shallower. Texturing additive technology, pretreatment technology or black silicon technology can solve texturing difficulty of DWS multi-Si wafers. Texturing additive technology does not change the original equipment, increase special additives, and reduce the wafer reflectivity to near normal level. Black silicon technology can optimize the trapping effect and improve the efficiency of multi-Si solar cells. The black silicon technology is divided into two routes: dry black silicon and wet black silicon. Each has its own advantages and has been mass-produced, and can be further upgraded and optimized.

According to ASIACHEM Consulting, China's black silicon production capacity has reached 25GW in the first half of 2018. Black silicon technology has great development potential, single-sided texturing can double the production capacity and further reduce the cost. The combination of black silicon and PERC, SE and MWT technology can further improve the mass production efficiency of multi-Si cell. Black silicon cell can also be applied to bifacial, MBB, halfcut-cell and shingled modules. With the advancement of black silicon supporting conductive paste and metallization technology, cell efficiency is expected to continue to increase. In addition, black silicon technology can also be used for mono-Si wafers, especially for the best choice of ingot casting silicon wafers.

3rd Diamond Wire Sawing and Black Silicon Technology Forum 2018 will be held on 12 September in Changzhou, Jiangsu, China. The upcoming conference will discuss PV industry outlook and mono-Si & multi-Si competitive analysis, DWS process and black silicon technology market prospects, DWS process development direction, dry black silicon and wet black silicon technology upgrade and cost reduction, application prospect of black silicon technology in mono-Si and ingot casting wafer, conductive paste and metallization solution of black silicon cell, combined application of black silicon cell and other efficiency improvement technologies, etc.

Preliminary Agenda

Sept. 11. 2018

16:00~21:00

Sept. 12. 2018

09:00~12:30

12:30~14:00

14:00~18:30

18:30~20:00

Tuesday

Pre-conference Registration

Wednesday

Speech

Networking Lunch

Speech

Banquet

Topics

- PV industry outlook and DWS & black silicon market prospects
- DWS intelligent development and production efficiency improvement
- Advantage analysis and thinning of plating diamond wire and resin diamond wire
- DWS wafer thinning trend and fragmentation rate control
- DWS coolants and silicon powder recycling technology
- DWS multi wafer texturing technology comparison — — additives, black silicon and pretreatment
- Dry black silicon process equipment optimization and capacity improvement
- Trough and chain wet black silicon mass production experience and environmental protection solutions
- Wet black silicon further cost reduction direction - single-sided texturing
- Wet black silicon technology upgrade — — enhance solution life, broaden process window and simplify process equipment
- Metal-free catalytic black silicon process development and application
- Black silicon solar cell paste and metallization solutions
- Application of black silicon technology in ingot casting and mono-Si wafer
- Combined applications of black silicon cell and other efficiency improvement technologies — — PERC, SE and MWT
- Black silicon cell applied to bifacial, MBB, halfcut-cell and shingled modules
- Black silicon solar cells CTM loss solutions — — encapsulating process and material optimization

English-Chinese Translation will be Provided