杭州南方环境净化设备有限公司

年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目

竣工环境保护验收监测报告表

杭广测监2019(HJ)字第1210号

建设单位： 杭州南方环境净化设备有限公司

编制单位： 杭州广测环境技术有限公司

二零二零年四月

**建设单位负责人:**

**编制单位负责人:**

**项  目 负 责  人:**

**填 表 人：** **李玉娜**

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| --- | --- |
| 建设单位：杭州南方环境净化设备有限公司 | 编制单位：杭州广测环境技术有限公司 |
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**表一**

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| --- | --- | --- | --- | --- | --- |
| 建设项目名称 | 杭州南方环境净化设备有限公司年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目 | | | | |
| 建设单位名称 | 杭州南方环境净化设备有限公司 | | | | |
| 建设项目性质 | 新建 √扩建  技改  迁建 | | | | |
| 建设地点 | 杭州市余杭区良渚街道杜城村 | | | | |
| 主要产品名称 | 除尘器、烧结板、滤筒、风阀、风管、离心风机、火花捕集器 | | | | |
| 设计生产能力 | 年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台 | | | | |
| 实际生产能力 | 年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台 | | | | |
| 建设项目环评时间 | 2019年05月 | 开工建设时间 | 2019年06月 | | |
| 调试时间 | 2019年11月 | 验收现场监测时间 | 2019年12月17日、18日 | | |
| 环评报告表  审批部门 | 杭州市生态环境局余杭分局 | 环评报告表  编制单位 | 浙江联强环境工程技术有限公司 | | |
| 环保设施设计单位 | / | 环保设施施工单位 | / | | |
| 投资总概算 | 957.10万元 | 环保投资总概算 | 45万元 | 比例 | 4.70% |
| 实际总概算 | 957.10万元 | 环保投资 | 205.5万元 | 比例 | 21.5% |
| 验收监测依据 | (1) 中华人民共和国国务院第682号令关于修改《建设项目环境保护管理条例》的决定，2017；  (2) 生态环境部 公告[2018]第9号 关于发布《建设项目竣工环境保护验收技术指南 污染影响类》的公告；  (3) 原环境保护部文件 国环规环评[2017]4号关于发布《建设项目竣工环境保护验收暂行办法》的公告；  (4) 浙江省人民政府令第364号《浙江省人民政府关于修改〈浙江省建设项目环境保护管理 办法〉的决定》，2018年1月；  (5) 浙江省环境保护厅 浙环发[2009]89号文《关于印发〈浙江省环境保护厅建设项目竣工环境保护验收技术管理规定〉的通知》；  (6) 浙江联强环境工程技术有限公司 编制的《杭州南方环境净化设备有限公司年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目》环境影响报告表；  (7) 杭州市生态环境局余杭分局 环评批复[2019]133号《关于杭州南方环境净化设备有限公司年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目环境影响报告表的审批函》。 | | | | |
| 验收监测评价标准、标号、级别、限值 | **废水：**  废水执行《污水综合排放标准》（GB 8978-1996）表4中的三级标准限值：pH值6-9，化学需氧量≤500mg/L，悬浮物≤400mg/L，石油类≤20mg/L，动植物油≤100mg/L；《工业企业废水氮、磷污染物间接排放限值》（DB 33/887-2013）表1中标准限值：氨氮≤35mg/L，总磷≤8mg/L。  **废气：**  下料、焊接、打磨等过程中产生颗粒物；胶水中少量有机废气执行《大气污染物综合排放标准》（GB 16297-1996）中的二级标准，见表1-1。  表1-1 大气污染物综合排放标准（GB16297-1996）   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 污染物 | 最高允许排放浓度 mg/m3 | 最高允许排放速率 kg/h | | 无组织排放监控浓度限值 | | | 排气筒高度m | 二级 | 监控点 | 浓度mg/m3 | | 颗粒物 | 120(其它) | 15 | 3.5 | 周界外浓度最高点 | 1.0 | | 非甲烷总烃 | 120(使用溶剂汽油或其他混合烃类物质) | 15 | 10 | 4.0 |   烧结板生产过程属于以合成树脂为原料，通过加热固化方法生产合成树脂制品，生产过程中产生的有机废气执行《合成树脂工业污染物排放标准》(GB 31572-2015)表5特别排放限值，企业边界大气污染物执行《合成树脂工业污染物排放标准》(GB 31572-2015)表9规定的限值，详见表1-2、1-3。  表1-2 大气污染物特别排放限值   |  |  |  |  | | --- | --- | --- | --- | | 序号 | 污染物项目 | 排放限值（mg/m3） | 污染物排放监控位置 | | 1 | 颗粒物 | 20 | 车间或生产设施排气筒 | | 2 | 非甲烷总烃 | 60 |   表1-3 企业边界大气污染物浓度限值   |  |  |  | | --- | --- | --- | | 序号 | 污染物项目 | 排放限值（mg/m3） | | 1 | 颗粒物 | 1.0 | | 2 | 非甲烷总烃 | 4.0 |   食堂油烟执行《饮食业油烟排放标准》（GB 18483-2001）表2中规定的饮食业单位的油烟最高允许排放浓度值。  表1-4 食堂油烟排放浓度限值和油烟最低去除效率   |  |  |  |  | | --- | --- | --- | --- | | 规模 | 小型 | 中型 | 大型 | | 最高允许排放浓度（mg/m3） | 2.0 | | | | 净化设施最低去除效率（%） | 60 | 75 | 85 |   **噪声：**  《工业企业厂界环境噪声排放标准》（GB 12348-2008）中的2类标准：厂界噪声排放限值（昼间）Leq≤60dB（A）。  **固废：**  固体废物属性判断依据《国家危险废物名录》（2016版）、《固体废物鉴别标准 通则》(GB 34330-2017)。危险固废执行《危险废物贮存污染控制标准》（GB18597-2001）及其修改单（环境保护部公告2013年第36号），其他固体废弃物执行《一般工 业固体废物贮存、处置场污染控制标准》（GB18599-2001）及其修改单（2013年第36号）和《中华人民共和国固体废物污染环境防治法》有关规定。  **总量控制指标：**  环评文件中污染物总量控制预测值：非甲烷总烃0.077t/a、化学需氧量0.128t/a、氨氮0.013t/a。 | | | | |

**表二**

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| 工程建设内容：  杭州南方环境净化设备有限公司成立于1996年05月31日，主要从事环保工程、机电工程的专业；环保领域内的技术开发、咨询、推广服务；高分子材料的产品研发、制造。现企业因发展需要，在企业自有厂区的基础上，租用南侧杭州林忠轻型墙体材料有限公司整个厂区，进行环保专用设备的生产，但调整部分产品内容，不再进行水处理设施和噪声控制设备生产，扩大大气污染防治设备的生产规模，形成年生产各式除尘器6000台、烧结板50000 件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台。  企业委托浙江联强环境工程技术有限公司于2019年05月编制《杭州南方环境净化设备有限公司年生产各式除尘器6000台、烧结板50000 件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目环境影响报告表》，并于2019年06月10日通过杭州市生态环境局余杭分局的审批，批准文号为环评批复[2019]133号。  受杭州南方环境净化设备有限公司委托，我公司承担了本项目的竣工环境保护验收监测工作。本次验收内容为：年生产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目。  表2-1 企业项目产品方案   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 序号 | 产品名称 | 单位 | 审批规模 | 实际规模 | | 1 | 除尘设备 | 台/a | 6000 | 6000 | | 2 | 烧结板 | 万件/a | 5 | 5 | | 3 | 滤筒 | 万件/a | 5 | 5 | | 4 | 风阀 | 件/a | 2000 | 2000 | | 5 | 风管 | 万米/a | 5 | 5 | | 6 | 离心风机 | 台/a | 500 | 500 | | 7 | 火花捕集器 | 台/a | 3000 | 3000 |   本项目员工人数为70人，年工作日300天，8小时白班制生产，设食堂、不设员工宿舍。根据企业提供的资料与现场调查，本项目主要工艺设备见表2-2。  表2-2主要生产设备表   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | 序号 | 设备名称 | | 型号 | 单位 | 审批数量 | 实际数量 | | 1 | 激光切割机 | | OLPC-15x60 | 台 | 2 | 2 | | 2 | 空气等离子切机 | | LGK8-63 | 台 | 2 | 2 | | 3 | 剪板机 | | QC12Y-6x4000 | 台 | 2 | 1 | | 4 | 裁板锯 | | MJ300-A | 台 | 2 | 1 | | 5 | 折弯机 | | WEH-110/4100 | 台 | 2 | 2 | | PBB-220/4100 | 台 | 2 | 2 | | 6 | 卷板机(卷圆机) | | II-1.5X127 | 台 | 2 | 2 | | JZO650 | 台 | 2 | 2 | | 7 | 车床 | | CD6140A | 台 | 1 | 1 | | 8 | 钻床 | | Z516 | 台 | 2 | 2 | | Z4025 | 台 | 2 | 2 | | 9 | 电动套丝机 | | Z3T-R3II | 台 | 1 | 1 | | ZIT-R2C | 台 | 1 | 1 | | 10 | 气动攻牙机 | | AT-12/I | 台 | 1 | 1 | | 11 | 钣金压铆机 | | TC-10T-800 | 台 | 1 | 1 | | 12 | 冲床 | | 2T | 台 | 1 | 1 | | 13 | 脚踏封口机 | | FR-A600 | 台 | 2 | 2 | | 14 | 角磨机 | | GWS750-100 | 台 | 35 | 35 | | 15 | 拉丝机 | | SIN-FF-120X100 | 台 | 5 | 5 | | 16 | 焊接机 | 浙工熔焊机 | DX-BOTTOM | 台 | 1 | 1 | | 点凸焊机 | DNT-400KW | 台 | 1 | 1 | | 二氧化碳气体  保护焊机 | NBC-315A | 台 | 10 | 10 | | NBC-350KR | 台 | 5 | 5 | | 氩弧焊机 | WS-400 | 台 | 10 | 10 | | TIG-400 | 台 | 5 | 5 | | YC-400TX | 台 | 1 | 1 | | 电焊机 | BX1-500 | 台 | 5 | 5 | | BX1-300F-3 | 台 | 3 | 3 | | 对焊机 | UN2-16 | 台 | 2 | 2 | | 17 | 焊缝清洗机 | | SL-1500 | 台 | 3 | 3 | | 18 | 扁龙骨机 | | / | 台 | 1 | 1 | | 19 | 打胶机 | | / | 台 | 10 | 10 | | 20 | 折纸机 | | DJCZ55-1050 | 台 | 2 | 2 | | 21 | 混料机 | | V-250 | 台 | 2 | 2 | | 22 | 烘箱 | | BLS-250 | 台 | 6 | 6 | | 23 | 螺杆式压缩机 | | BLT-25A-3.0/8 | 台 | 2 | 2 | | 24 | 冷冻式干燥机 | | ADL-30F | 台 | 2 | 2 | | 25 | 磨具 | | / | 套 | 10 | 10 | | 26 | 起重机 | | LD | 架 | 5 | 5 | | 27 | 叉车 | | / | 辆 | 9 | 3 |   原辅材料消耗及水平衡：   根据企业提供的资料与现场调查，本项目所需的主要原辅材料情况见表2-3。  表2-3 主要原辅材料消耗表   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 序号 | 原辅材料 | 单位 | 原审批用量 | 实际用量 | | 1 | 碳钢钢板 | t/a | 500 | 450 | | 2 | 碳钢型材(角钢) | t/a | 100 | 80 | | 3 | 不锈钢钢板 | t/a | 300 | 270 | | 4 | 不锈钢型材 | t/a | 10 | 9 | | 5 | 聚酯滤纸 | 卷/a | 3365 | 3300 | | 6 | 聚乙烯粉末 | t/a | 50 | 50 | | 7 | 针织毡 | 平方米/a  a | 1万 | 0.8 | | 8 | 环氧树脂胶 | t/a | 1.8 | 1.6 | | 9 | 镀锌圆钢丝 | t/a | 15 | 15 | | 10 | 不锈钢钢网 | t/a | 5 | 5 | | 11 | 金属焊条 | 箱/a | 200 | 200 | | 12 | 机械润滑油 | t/a | 0.5 | 0.5 | | 13 | 砂轮片 | 箱/a | 50 | 50 | | 14 | 紧固螺栓 | 万套/a | 30 | 25 | | 15 | 五金配件 | 万套/a | 1 | 1 | | 16 | 电气配件 | 万套/a | 1 | 1 | | 17 | 塑料配件 | 万套/a | 5 | 5 |   根据企业提供的资料，建设项目产生的废水为员工生活废水，年用水量为2100吨，企业正常营运时的水平衡图如下：  2100t/a  1800t/a  生活用水员工70人  化粪池预处理  纳管排放  损耗300t/a  图2-1 项目水平衡图  主要工艺流程及产污环节(附处理工艺流程图，标出产污节点)：  1、各式除尘器、风阀、离心风机、火花捕集器生产工艺：  图2-2 各式除尘器、风阀、离心风机、火花捕集器生产工艺及产污环节图  各式除尘器、风阀、离心风机、火花捕集器生产工艺说明：  钢材、型材等原材料进行切割或剪板下料，用折弯机或卷板机进行折弯或卷板，用车床、钻床、套丝机等进行机加工，对需要焊接的零部件进行组装焊接，焊接完成之后送至打磨车间进行打磨，将焊接表面或者切割表面上的毛刺等进行打磨平滑，如果材料为碳钢时，打磨完成后的零部件送至外协单位，待喷塑材料完全干硬后由外协单位返厂后，在总装车间与其他五金配件、电气配件等进行总装，最后将总装好的设备进行相应的调试，待调试无误后对设备进行包装入库。  2、烧结板生产工艺：  图2-3 烧结板生产工艺及产污环节图  烧结板生产工艺说明：  将不同规格的聚乙烯粉末进行混合，再填入到模具中，送入电烘箱内进行固化，固化温度控制在130℃～150℃左右，固化时间约1h，自然冷却后，按照尺寸将其进行切割，切割掉多余的部分，将切割出来的半成品与外购塑料件(底座、头部等)进行装配并密封，装配过程采用环氧树脂胶作为黏合剂，随后对其进行包装，即可得到相应尺寸的烧结板成品。  3、滤筒生产工艺：  图2-4 滤筒生产工艺图  滤筒生产工艺说明：  按设计要求选择用于制作滤筒的滤纸材料及厚度，随后进行裁剪，将裁剪出来的滤纸放到折纸机上进行折纸并让其固定成型，随后用相应的塑料件(滤筒接头和底部)与固定成型的滤纸拼装，两两接触的部分施胶进行封头封尾，待胶水硬化后送至包装区域进行包装，即可得到相应设计尺寸下的滤筒成品。  4、滤袋生产工艺：  图2-5 滤袋生产工艺图  滤袋生产工艺说明：  按设计要求选择用于制作滤袋的滤布材料及厚度，随后进行裁剪，将裁剪出来的滤布进行拼缝，最后检查滤袋缝线的行数、滤袋袋身纵向缝线是否牢固、平直，且不得少于三条，确认无误后即可得到相应设计尺寸的滤袋成品。  5、风管生产工艺：  图2-6 风管生产工艺图  风管生产工艺说明：  选用不同厚度的钢板作为原料，下料后进行卷板，再进行焊接，将焊接表面或者切割出来的毛刺等进行打磨平滑后，包装入库。  项目变动情况说明：  根据对项目实际建设情况和审批情况对照，本项目对照环评内容稍有变动，变动如下：  本项目环评审批设备为：剪板机2台、裁板锯为2台、叉车9辆，本项目实际设备为：剪板机1台、裁板锯为1台、叉车3辆，不属于重大变动；  本项目环评审批环保设施处理设施为：低温等离子处理设施和除尘器，实际生产环保处理设施为UV光催化装置和除尘器，不属于重大变动；  本项目环评审批生产工艺和现有生产工艺一致，无变动。  综上所述，本项目无重大变动情况。 |

**表三**

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| 主要污染源、污染物处理和排放(附处理流程示意图，标出废水、厂界噪声监测点位)：  1、废水  本项目产生的废水仅为生活污水，生活污水经过化粪池预处理后纳管排放。  生活污水  化粪池预处理  纳管排放  ★  图3-1 废水监测点位示意图(★为监测点位)  2、废气  本项目产生的废气主要包括激光切割废气、打磨焊接废气、胶水废气、固化废气、切割废气(切割机、刷版机)以及食堂油烟废气。  烧结板激光切割工序产生的切割废气经过烧结板除尘器处理后经15米高排气筒高空排放；  烧结板打磨焊接废气经烧结板除尘器处理后经排气筒1和排气筒2经过15米高排气筒高空排放；  胶水废气经UV光氧催化处理装置处理后经15米高排气筒高空排放；  固化废气经UV光氧催化处理装置处理后经15米高排气筒高空排放；  切割机废气(切割机)经过烧结板除尘器处理后经15米高排气筒高空排放；  切割机废气(刷版机)经过烧结板除尘器处理后经15米高排气筒高空排放。  激光切割废气  除尘器  15m高排气筒高空排放  ◎出口  ◎进口  打磨焊接废气1  除尘器  15m高排气筒高空排放  ◎出口  打磨焊接废气2  除尘器  15m高排气筒高空排放  ◎出口  胶水废气  UV光催化装置  15m高排气筒高空排放  ◎出口  固化废气  UV光催化装置  15m高排气筒高空排放  ◎出口  ◎进口  ◎进口  切割废气(切割机)废气  除尘器  15m高排气筒高空排放  ◎出口  ◎进口  切割废气(刷版机)废气  除尘器  15m高排气筒高空排放  ◎出口  ◎进口  图3-2 有组织废气处理工艺及监测点位示意图(◎为监测点位)  食堂油烟：烹饪过程产生的油烟废气经收集后由鼓泡式处理器处理后排放。  食堂油烟  鼓泡式处理器  排气筒排放  ◎  图3-3 食堂油烟废气监测点位示意图（◎为监测点位）  3、噪声  项目噪声主要为生产过程中设备的运行噪声，项目所用设备合理布局，运行时关闭车间门窗等。具体监测点位见下图：  ★  ▲1#  ◎  ◎  ◎激光  切割  ◎ 胶水  ▲4#  ◎ 固化  ◎ 油烟  ◎ ◎  ▲3#  ▲2#  图3-4 监测点位示意图(无组织废气○、有组织废气◎、废水采样点位★、噪声监测点位▲)  4、固废  项目产生的固体废物包括工业固废和生活垃圾，其中工业固废主要为金属边角料及金属屑、滤纸及针织毡边角料、塑料边角料、废包装材料、废机械润滑油、废包装桶、废手套、抹布、刷子、废砂轮片、废油脂。金属边角料及金属屑、滤纸及针织毡边角料、塑料边角料、废包装材料收集后由物资回收单位处理；废机械润滑油收集后委托杭州大地海洋环保股份有限公司进行安全处置；废油脂目前尚未产生；废包装桶由企业重复利用；废手套、抹布、刷子混入生活垃圾，废砂轮片、生活垃圾定点分类收集，交市政环卫部门外运处置。 |

**表四**

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| 建设项目环境影响报告表主要结论及审批部门审批决定：  一、环境影响报告表总结论  杭州南方环境净化设备有限公司拟进行的年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目位于杭州市余杭区良渚街道杜城村，用地性质属工业用地，房屋性质为工业用房，符合余杭区良渚街道用地总体规划，建设内容符合当地环境功能区规划，符合国家和地方相关产业政策。产生的各种污染物经相应治理措施后均可达标排放，对周围环境影响较小。本项目只要落实环评提出的各项污染防治措施，严格执行“三同时”制度，加强环保管理以确保污染物达标排放，从环保角度而言，本项目的实施是可行的。  二、环评批复实际落实情况  表4-1 环评批复实际落实情况表   |  |  |  | | --- | --- | --- | | 项目 | 环评批复审批要求 | 实际落实情况 | | 建设内容 | 该项目属扩建项目，在杭州市余杭区良渚街道杜城村实施。从事环保专用设备的生产：项目建成投产后形成年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台的生产规模。 | 基本属实。  现企业因发展需要，在企业自有厂区的基础上，租用南侧杭州林忠轻型墙体材料有限公司整个厂区，进行环保专用设备的生产，但调整部分产品内容，不再进行水处理设施和噪声控制设备生产，扩大大气污染防治设备的生产规模，本项目年生产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台。 | | 废气 | 加强废气污染防治。做好切割、打磨、焊接、拼接、塑料固化等工序的污染防治工作;产生的废气粉尘须收集处理后由不低于15米的排气筒达标排放，排放标准分别执行《大气污染物综合排放标准》(CB16297-1996) 中的二级标准和《合成树脂工业污染物排放标准》(CB31572-12015) 中特别限值要求。食堂油烟废气须经油烟净化设施处理后达标排放，排放标准执行《饮食业油烟排放标准》(GB18483-2001) 中的相关标准。 | 本项目产生的废气主要包括激光切割废气、打磨焊接废气、胶水废气、固化废气、切割废气(切割机、刷版机)以及食堂油烟废气。  ①烧结板激光切割工序产生的切割废气经过烧结板除尘器处理后经15米高排气筒高空排放；②烧结板打磨焊接废气经烧结板除尘器处理后经排气筒1和排气筒2经过15米高排气筒高空排放；③胶水废气经UV光氧催化处理装置处理后经15米高排气筒高空排放；④固化废气经UV光氧催化处理装置处理后经15米高排气筒高空排放；⑤切割机废气(切割机)经过烧结板除尘器处理后经15米高排气筒高空排放；⑥切割机废气(刷版机)经过烧结板除尘器处理后经15米高排气筒高空排放；⑦烹饪过程产生的油烟废气经收集后由鼓泡式处理器处理后排放。  废气、食堂油烟达标排放。 | | 噪声 | 加强噪声污染防治。车间合理布局并采取减震、隔声等措施，使厂界噪声达标。厂界噪声执行《工业企业厂界环境噪声排放标准》(CB12348 2008)中2类标准。 | 已落实。  对生产设备等做好减振、防震措施，如安装防震垫片等；对于配套的风机，做好减振、防震措施，并对废气管道等产生气流噪声，管道接口处用软连接，管道安装采用弹性吊架，支架采用隔振型产品；管道外做阻尼包扎，管道与墙体相通处设防震支架等。  生产期间加强设备的日常维护，避免设备非正常运行产生噪声；生产车间配备隔声门窗，生产时及时关闭门窗；加强工人的生产操作管理，减少人为噪声的产生。  噪声达标排放。 | | 废水 | 加强废水污染防治。生活污水须收集预处理达《污水综合排放标准》(CB8978-1996) 中三级标准后纳入市政污水管网，送市政污水处理厂集中处理。 | 已落实。  项目产生的废水仅为生活污水，生活污水经过预处理后纳管排放，纳管废水执行《污水综合排放标准》(GB 8978-1996)中的三级标准，其中氨氮排放执行《工业企业废水氮、磷污染物间接排放限值》（DB 33/887-2013）。  生活污水达标排放。 | | 固废 | 加强固废污染防治。固体废弃物应按照“资源化、减量化、无害化”处置原则，尽可能实现资源的综合利用。废机油、废包装桶等须妥善收集委托有资质的单位进行处置；边角料、金属粉尘、废包装材料等固废须搞好综合利用或合理处置；生活垃圾等由环卫部门集中统一处理。 | 项目产生的固体废物包括工业固废和生活垃圾，其中工业固废主要为金属边角料及金属屑、滤纸及针织毡边角料、塑料边角料、废包装材料、废机械润滑油、废包装桶、废手套、抹布、刷子、废砂轮片、废油脂。金属边角料及金属屑、滤纸及针织毡边角料、塑料边角料、废包装材料收集后由物资回收单位处理；废机械润滑油收集后委托杭州大地海洋环保股份有限公司进行安全处置；废油脂目前尚未产生；废包装桶由企业重复利用；废手套、抹布、刷子混入生活垃圾，废砂轮片、生活垃圾定点分类收集，交市政环卫部门外运处置。 | |

**表五**

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| 验收监测质量保证及质量控制：  一、监测分析方法  监测分析方法按照国家标准分析方法和国家环保局颁布的监测分析方法及有关规定执行。样品的采集、运输、保存及实验室分析全过程质量保证参照《浙江省环境监测质量保证技术规定》执行。监测分析方法见表5-1。  表5-1监测分析方法   | 类别 | 编号 | 项目名称 | 监测方法 | 方法标准号及来源 | | --- | --- | --- | --- | --- | | 废水 | 1 | pH值 | 便携式pH计法 《水和废水监测分析方法》(第四版增补版) | 国家环保总局(2002年) | | 2 | 化学需氧量 | 水质 化学需氧量的测定 快速消解分光光度法 | HJ/T 399-2007 | | 3 | 悬浮物 | 水质 悬浮物的测定 重量法 | GB/T 11901-1989 | | 4 | 氨氮 | 水质 氨氮的测定 纳氏试剂分光光度法 | HJ 535-2009 | | 5 | 总磷 | 水质 总磷的测定 钼酸铵分光光度法 | GB/T 11893-1989 | | 6 | 石油类、动植物油 | 水质 石油类和动植物油类的测定 红外分光光度法 | HJ 637-2018 | | 废气 | 7 | 排气参数 | 固定污染源排气中颗粒物的测定与气态污染物采样方法 | GB/T 16157-1996 | | 8 | 非甲烷总烃 | 固定污染源废气 总烃、甲烷和非甲烷总烃的测定 气相色谱法 | HJ 38-2017 | | 9 | 环境空气 总烃、甲烷和非甲烷总烃的测定 直接进样-气相色谱法 | HJ 604-2017 | | 10 | 颗粒物 | 固定污染源排气中颗粒物测定与气态污染物采样方法 | GB/T 16157-1996 | | 11 | 固定污染源废气 低浓度颗粒物的测定 重量法 | HJ 836-2017 | | 12 | 环境空气 总悬浮颗粒物的测定 重量法 | GB/T 15432-1995 | | 13 | 饮食业油烟 | 饮食业油烟排放标准(试行) | GB 18483-2001 附录A | | 噪声 | 14 | 厂界噪声 | 工业企业厂界环境噪声排放标准 | GB 12348-2008 |  1. 监测仪器分析   根据《检验检测机构资质认定能力评价 检验检测机构通用要求》(RB/T 214-2017)中4.4.3章节的设备管理相关规定以及《检验检测机构资质认定生态环境监测机构评审补充要求》第十二条要求，配齐包括现场测试和采样、样品保存运输和制备、实验室分析及数据处理等监测工作各环节所需的仪器设备，建立和保持仪器设备维护、管理相关的程序，使设备的性能和状态符合检测技术要求，对仪器设备实施有效管理。  我公司参与本次项目监测的仪器均由资质单位经过检定，并在有效的检定范围之内，设备使用前校准合格后使用，能保证监测数据的有效性。  三、人员资质  参与本项目的采样、分析技术人员均参与浙江省环境监测协会及公司内部培训，并通过考核，拥有相关领域的上岗证，做到执证上岗。  四、质量保证及质量控制  1、项目采样、布点、分析方法符合国家和行业标准及相关的监测技术规范；  2、参加环境保护设施竣工验收监测采样和测试人员，按国家有关规定持证上岗；  3、气体监测分析过程的质量保证和质量控制：采样器在监测前对气体分析、采样器流量计等进行校准；  4、噪声监测分析过程中的质量保证和质量控制：噪声监测设备使用前校准合格后使用；并在有效的检定范围之内；  5、监测的采样记录及分析结果，按国家标准和监测技术规范要求进行数据处理及填报，并按规定和要求进行三级审核。 |

**表六**

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| **验收监测内容：**  一、废水  本次验收监测污水排放口，监测内容见下表6-1。  表6-1 废水监测内容   |  |  |  |  | | --- | --- | --- | --- | | **测点编号** | **采样点位** | **监测项目** | **采样频次** | | ★ | 污水排放口 | pH值、化学需氧量、悬浮物、氨氮、总磷、动植物油类、石油类 | 2天，4个频次/天 |   二、废气  1、有组织废气  本项目废气收集后经处理装置处理后经15米高排气筒高空排放。有组织废气监测内容见下表6-2。  表6-2 有组织废气监测内容   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **测点编号** | **采样点位** | **处理设施** | **监测项目** | **采样频次** | | ◎1 | 激光切割废气(进口、出口) | 除尘器 | 颗粒物 | 2天，3次/天 | | ◎2 | 打磨焊接废气1(出口) | 除尘器 | 低浓度颗粒物 | 2天，3次/天 | | ◎3 | 打磨焊接废气1(出口) | 除尘器 | 低浓度颗粒物 | 2天，3次/天 | | ◎4 | 胶水废气(进口、出口) | UV光催化装置 | 非甲烷总烃 | 2天，3次/天 | | ◎5 | 固化废气(进口、出口) | UV光催化装置 | 非甲烷总烃 | 2天，3次/天 | | ◎6 | 切割废气(切割机)废气(进口、出口) | 除尘器 | 颗粒物 | 2天，3次/天 | | ◎7 | 切割废气(刷版机)废气(进口、出口) | 除尘器 | 颗粒物 | 2天，3次/天 | | ◎8 | 两眼一汤灶(出口) | 鼓泡式处理器 | 饮食业油烟 | 2天，5次/天 |   2、无组织废气监测内容见下表6-3。  表6-3 无组织废气监测内容   |  |  |  | | --- | --- | --- | | **测点编号/采样点位** | **监测项目** | **采样频次** | | 上风向：1#○，下风向：2#○、3#○、4#○ | 非甲烷总烃、总悬浮颗粒物 | 2天，4次/天 |   三、噪声  本项目噪声监测内容见下表6-4。  表6-4 噪声监测内容   |  |  |  | | --- | --- | --- | | **测点编号/采样点位** | **监测项目** | **采样频次** | | 1#▲、2#▲、3#▲、4#▲ | 昼间噪声 | 2天，1次/天 | |

**表七**

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--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、验收监测期间生产工况记录：**  监测期间全厂生产正常，天气符合监测条件，本项目产能为年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台，年工作300天。  表7-1 监测期间工况   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 设计产量  实际产量  产品名称 | 产能：每天各式除尘器20台、烧结板167件、滤筒167件、风阀6.7件、风管167米、离心风机1.67台、火花捕集器10台 | | | | | 12月17日 | | 12月18日 | | | 实际产量 | **生产负荷(%)** | 实际产量 | **生产负荷(%)** | | **各式除尘器(台)** | 18 | **90.0** | 19 | **95.0** | | **烧结板(件)** | 160 | **95.8** | 158 | **94.6** | | **滤筒(件)** | 165 | **98.8** | 160 | **95.8** | | **风阀(件)** | 6.1 | **91.0** | 6.3 | **94.0** | | **风管(m)** | 155 | **92.8** | 162 | **97.0** | | **离心风机(台)** | 1.55 | **92.8** | 1.56 | **93.4** | | **火花捕集器(台)** | 9 | **90.0** | 9.2 | **92.0** |   **二、验收监测结果**  **1、废水**  表7-2 废水监测结果   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **采样日期及时间** | | **样品性状** | **pH值**  **无量纲** | **化学需氧量mg/L** | **氨氮mg/L** | **总磷mg/L** | **悬浮物mg/L** | **动植物油类mg/L** | | 生活污水排放口2019.12.17 | 09:40 | 微黄微浊 | 6.87 | 66 | 12.5 | 1.27 | 25 | 0.35 | | 11:40 | 6.80 | 71 | 13.5 | 1.33 | 30 | 0.29 | | 13:40 | 6.85 | 79 | 12.8 | 1.14 | 24 | 0.27 | | 15:40 | 6.92 | 68 | 13.0 | 1.22 | 28 | 0.22 | | **均值** | | **-** | **71** | **13.0** | **1.24** | **27** | **0.28** | | 生活污水排放口2019.12.18 | 09:40 | 微黄微浊 | 6.79 | 76 | 12.9 | 1.31 | 26 | 0.29 | | 11:40 | 6.82 | 81 | 13.4 | 1.33 | 36 | 0.31 | | 13:40 | 6.88 | 73 | 13.1 | 1.36 | 33 | 0.29 | | 15:40 | 6.76 | 78 | 13.6 | 1.40 | 27 | 0.30 | | **均值** | | **-** | **77** | **13.2** | **1.35** | **30** | **0.30** | | 结论：2019年12月17日-18日，污水排放口水中pH值、化学需氧量、悬浮物、氨氮、总磷、动植物油类监测结果均符合标准限值要求。 | | | | | | | | |   表7-3 废水监测结果   |  |  |  |  | | --- | --- | --- | --- | | **采样日期及时间** | | **样品性状** | **石油类（mg/L）** | | 生活污水排放口  2020.03.12 | 09:30 | 微黄微浊 | 0.79 | | 11:30 | 0.79 | | 13:30 | 0.79 | | 15:30 | 0.78 | | **均值** | | **0.79** | | 生活污水排放口  2020.03.13 | 09:30 | 微黄微浊 | 0.80 | | 11:30 | 0.77 | | 13:30 | 0.77 | | 15:30 | 0.77 | | **均值** | | **0.78** | | 结论：2020年03月12日-13日，污水排放口水中石油类监测结果均符合标准限值要求。 | | | |   **2、废气**  表7-4 采样期间气象参数   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **采样期间气象参数** | | | | | | | | 日期 | 时间 | 风向 | 风速(m/s) | 气温(℃) | 气压(kPa) | 天气情况 | | 2019年12月17日 | 09:30-10:30 | 北 | 2.4 | 12 | 101.8 | 阴 | | 11:30-12:30 | 北 | 2.3 | 14 | 101.8 | 阴 | | 13:30-14:30 | 北 | 2.1 | 15 | 101.8 | 阴 | | 15:30-16:30 | 北 | 2.4 | 11 | 101.8 | 阴 | | 2019年12月18日 | 09:35-10:35 | 北 | 2.8 | 7 | 102.0 | 阴 | | 11:35-12:35 | 北 | 2.7 | 9 | 102.0 | 阴 | | 13:35-14:35 | 北 | 2.5 | 10 | 102.0 | 阴 | | 15:35-16:35 | 北 | 2.6 | 8 | 102.0 | 阴 |   表7-5 无组织废气监测结果   |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 测点 | 监测  项目 | 单位 | 监测结果 | | | | | | | | | | | 2019年12月17日 | | | | | 2019年12月18日 | | | | | | 第1次 | 第2次 | 第3次 | 第4次 | **最大值** | 第1次 | 第2次 | 第3次 | 第4次 | **最大值** | | 上风向1 | 总悬浮颗粒物 | mg/m3 | 0.20 | 0.25 | 0.21 | 0.20 | **0.25** | 0.23 | 0.24 | 0.26 | 0.24 | **0.26** | | 非甲烷总烃 | mg/m3 | 0.36 | 0.33 | 0.29 | 0.30 | **0.36** | 0.29 | 0.33 | 0.29 | 0.27 | **0.33** | | 下风向2 | 总悬浮颗粒物 | mg/m3 | 0.28 | 0.32 | 0.27 | 0.31 | **0.32** | 0.28 | 0.31 | 0.37 | 0.28 | **0.37** | | 非甲烷总烃 | mg/m3 | 0.48 | 0.56 | 0.38 | 0.38 | **0.56** | 0.52 | 0.33 | 1.09 | 1.00 | **1.09** | | 下风向3 | 总悬浮颗粒物 | mg/m3 | 0.27 | 0.30 | 0.29 | 0.32 | **0.32** | 0.28 | 0.29 | 0.38 | 0.31 | **0.38** | | 非甲烷总烃 | mg/m3 | 1.06 | 1.05 | 0.72 | 0.92 | **1.06** | 0.92 | 1.03 | 0.54 | 0.43 | **1.03** | | 下风向4 | 总悬浮颗粒物 | mg/m3 | 0.32 | 0.33 | 0.39 | 0.32 | **0.39** | 0.30 | 0.31 | 0.36 | 0.29 | **0.36** | | 非甲烷总烃 | mg/m3 | 0.82 | 1.18 | 0.58 | 0.69 | **1.18** | 0.57 | 0.46 | 0.61 | 0.48 | **0.61** | | 结论：2019年12月17日，厂界无组织废气各监控点浓度最大值为非甲烷总烃1.18mg/m3，总悬浮颗粒物0.39mg/m3；2019年12月18日，厂界无组织废气各监控点浓度最大值为非甲烷总烃1.09mg/m3，总悬浮颗粒物0.38mg/m3，均符合标准限值。 | | | | | | | | | | | | |   表7-6 有组织废气第一周期监测结果   |  |  | | --- | --- | | 监测点位：激光切割废气排气筒(进口,出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.049，出口0.049 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 17 | | | 21 | | | | \*2 | 废气含湿率 | % | 2.7 | | | 2.4 | | | | \*3 | 测点废气流速 | m/s | 12.6 | | | 14.1 | | | | \*4 | 实测流量 | m3/h | 2.17×103 | | | 2.50×103 | | | | \*5 | 标干流量 | Nm3/h | 2.05×103 | | | 2.28×103 | | | | 6 | 颗粒物浓度 | mg/m3 | 29 | 28 | 27 | 1.8 | 1.8 | 1.5 | | 7 | 颗粒物排放浓度 | mg/m3 | 28 | | | 1.7 | | | | 8 | 颗粒物排放速率 | kg/h | 0.0574 | | | 3.88×10-3 | | | | 9 | 去除率 | % | 93.2 | | | | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 监测点位：打磨焊接废气排气筒1(出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：0.385 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | \*1 | 测点废气温度 | ℃ | 18.0 | | | | \*2 | 废气含湿率 | % | 2.8 | | | | \*3 | 测点废气流速 | m/s | 17.4 | | | | \*4 | 实测流量 | m3/h | 2.42×104 | | | | \*5 | 标干流量 | Nm3/h | 2.22×104 | | | | 6 | 低浓度颗粒物浓度 | mg/m3 | 2.8 | 2.1 | 2.6 | | 7 | 低浓度颗粒物排放浓度 | mg/m3 | 2.5 | | | | 8 | 低浓度颗粒物排放速率 | kg/h | 0.056 | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | |  |  |  | | --- | --- | | 监测点位：打磨焊接废气排气筒2(出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：0.385 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | \*1 | 测点废气温度 | ℃ | 19 | | | | \*2 | 废气含湿率 | % | 2.7 | | | | \*3 | 测点废气流速 | m/s | 17.3 | | | | \*4 | 实测流量 | m3/h | 2.40×104 | | | | \*5 | 标干流量 | Nm3/h | 2.19×104 | | | | 6 | 低浓度颗粒物浓度 | mg/m3 | 1.3 | 2.0 | 1.8 | | 7 | 低浓度颗粒物排放浓度 | mg/m3 | 1.7 | | | | 8 | 低浓度颗粒物排放速率 | kg/h | 0.037 | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | |  |  |  | | --- | --- | | 监测点位：胶水废气排气筒(进口,出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：UV光氧催化 | | 管道截面积(m2)：进口0.0201，出口0.0706 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | | 进口 | | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 17 | | | | 19 | | | | \*2 | 废气含湿率 | % | 2.6 | | | | 2.4 | | | | \*3 | 测点废气流速 | m/s | 28.4 | | | | 10.9 | | | | \*4 | 实测流量 | m3/h | 2.06×103 | | | | 2.77×103 | | | | \*5 | 标干流量 | Nm3/h | 1.90×103 | | | | 2.54×103 | | | | 6 | 非甲烷总烃浓度 | mg/m3 | 9.14 | 8.34 | 9.13 | 1.13 | | 1.33 | 1.23 | | 7 | 非甲烷总烃排放浓度 | mg/m3 | 8.87 | | | | 1.23 | | | | 8 | 非甲烷总烃排放速率 | kg/h | 0.0169 | | | | 3.12×10-3 | | | | 9 | 去除率 | % | 81.5 | | | | | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | | |  |  |  | | --- | --- | | 监测点位：固化废气排气筒(进口,出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：UV光氧催化 | | 管道截面积(m2)：进口0.0962，出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | | 进口 | | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 18 | | | | 21 | | | | \*2 | 废气含湿率 | % | 2.5 | | | | 2.3 | | | | \*3 | 测点废气流速 | m/s | 31.2 | | | | 12.4 | | | | \*4 | 实测流量 | m3/h | 1.08×104 | | | | 1.27×104 | | | | \*5 | 标干流量 | Nm3/h | 9.95×103 | | | | 1.16×104 | | | | \*6 | 非甲烷总烃浓度 | mg/m3 | 6.74 | 7.18 | 7.00 | 1.85 | | 1.26 | 1.28 | | 7 | 非甲烷总烃排放浓度 | mg/m3 | 6.97 | | | | 1.46 | | | | 8 | 非甲烷总烃排放速率 | kg/h | 0.0694 | | | | 0.0169 | | | | 9 | 去除率 | % | 75.6 | | | | | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | | |  |  |  | | --- | --- | | 监测点位：切割废气(切割机)排气筒进口(进口，出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.126，出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | | 进口 | | | 出口 | | | | | \*1 | 测点废气温度 | ℃ | 18 | | | 22 | | | | | \*2 | 废气含湿率 | % | 2.7 | | | 2.5 | | | | | \*3 | 测点废气流速 | m/s | 22.6 | | | 49.0 | | | | | \*4 | 实测流量 | m3/h | 1.02×104 | | | 1.29×104 | | | | | \*5 | 标干流量 | Nm3/h | 9.33×103 | | | 1.17×104 | | | | | 6 | 颗粒物浓度 | mg/m3 | 33 | 36 | 34 | | 2.8 | 2.6 | 2.5 | | 7 | 颗粒物排放浓度 | mg/m3 | 34 | | | 2.6 | | | | | 8 | 颗粒物排放速率 | kg/h | 0.32 | | | 0.030 | | | | | 9 | 去除率 | % | 90.6 | | | | | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | | |  |  |  | | --- | --- | | 监测点位：切割废气(刷板机)排气筒进口(进口，出口) | 采样日期：2019年12月17日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.126，出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | | 进口 | | | 出口 | | | | | \*1 | 测点废气温度 | ℃ | 16 | | | 20 | | | | | \*2 | 废气含湿率 | % | 2.8 | | | 2.6 | | | | | \*3 | 测点废气流速 | m/s | 23.5 | | | 12.5 | | | | | \*4 | 实测流量 | m3/h | 1.07×104 | | | 1.27×104 | | | | | \*5 | 标干流量 | Nm3/h | 9.80×103 | | | 1.16×104 | | | | | \*6 | 颗粒物浓度 | mg/m3 | 37 | 36 | 40 | | 2.8 | 2.7 | 2.7 | | | 7 | 颗粒物排放浓度 | mg/m3 | 38 | | | 2.7 | | | | | 8 | 颗粒物排放速率 | kg/h | 0.37 | | | 0.031 | | | | | 9 | 去除率 | % | 91.6 | | | | | | | | \*号的为现场测试参数  结论：2019年12月17日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | | |  |  |  | | --- | --- | | 采样日期：2019年12月17日 | 灶头型号：两眼一汤灶 | | 排口编号及属性：/ | 净化装置名称：鼓泡式处理器 | | 烟囱高度(米)：4 | 灶头总数(个)：2.2 | | 实测灶头数(个)：(由企业方负责人提供) | 管道截面积(m2)：0.189 | | \*为现场测试参数 | |  |  |  |  |  | | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | \*1 | 测点废气温度 | ℃ | 25 | | \*2 | 废气含湿率 | % | 3.7 | | \*3 | 测点废气流速 | m/s | 6.1 | | \*4 | 实测流量 | m3/h | 4.16×103 | | \*5 | 标干流量 | Nm3/h | 3.69×103 | | 6 | 饮食业油烟排放浓度 | mg/m3 | 0.331 | | 结论：2019年12月17日排气筒出口油烟排放浓度的监测结果符合标准限值要求。 | | | |   表7-7 有组织废气第二周期监测结果   |  |  | | --- | --- | | 监测点位：激光切割废气排气筒(进口,出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.049,出口0.049 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 16 | | | 20 | | | | \*2 | 废气含湿率 | % | 2.8 | | | 2.5 | | | | \*3 | 测点废气流速 | m/s | 12.6 | | | 13.9 | | | | \*4 | 实测流量 | m3/h | 2.24×103 | | | 2.46×103 | | | | \*5 | 标干流量 | Nm3/h | 2.06×103 | | | 2.25×103 | | | | \*6 | 颗粒物浓度 | mg/m3 | 31 | 31 | 30 | 1.2 | 1.6 | 1.3 | | 7 | 颗粒物排放浓度 | mg/m3 | 31 | | | 1.4 | | | | 8 | 颗粒物排放速率 | kg/h | 0.064 | | | 3.15×10-3 | | | | 9 | 去除率 | % | 95.1 | | | | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 监测点位：打磨焊接废气排气筒1(出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：0.385 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | \*1 | 测点废气温度 | ℃ | 17 | | | | \*2 | 废气含湿率 | % | 2.7 | | | | \*3 | 测点废气流速 | m/s | 17.2 | | | | \*4 | 实测流量 | m3/h | 2.32×104 | | | | \*5 | 标干流量 | Nm3/h | 2.20×104 | | | | \*6 | 低浓度颗粒物浓度 | mg/m3 | 2.7 | 2.5 | 2.4 | | 7 | 低浓度颗粒物排放浓度 | mg/m3 | 2.5 | | | | 8 | 低浓度颗粒物排放速率 | kg/h | 0.055 | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | |  |  |  | | --- | --- | | 监测点位：打磨焊接废气排气筒2(出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：0.385 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | \*1 | 测点废气温度 | ℃ | 16.0 | | | | \*2 | 废气含湿率 | % | 2.6 | | | | \*3 | 测点废气流速 | m/s | 17.2 | | | | \*4 | 实测流量 | m3/h | 2.39×104 | | | | \*5 | 标干流量 | Nm3/h | 2.22×104 | | | | \*6 | 低浓度颗粒物浓度 | mg/m3 | 1.7 | 2.0 | 1.2 | | 7 | 低浓度颗粒物排放浓度 | mg/m3 | 1.6 | | | | 8 | 低浓度颗粒物排放速率 | kg/h | 0.036 | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | |  |  |  | | --- | --- | | 监测点位：胶水废气排气筒(进口,出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：UV光氧催化 | | 管道截面积(m2)：进口0.0201,出口0.0706 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 16 | | | 18 | | | | \*2 | 废气含湿率 | % | 2.7 | | | 2.5 | | | | \*3 | 测点废气流速 | m/s | 28.5 | | | 11.0 | | | | \*4 | 实测流量 | m3/h | 2.06×103 | | | 2.79×103 | | | | \*5 | 标干流量 | Nm3/h | 1.91×103 | | | 2.57×103 | | | | \*6 | 非甲烷总烃浓度 | mg/m3 | 8.11 | 8.84 | 8.13 | 1.24 | 0.98 | 1.06 | | 7 | 非甲烷总烃排放浓度 | mg/m3 | 8.36 | | | 1.09 | | | | 8 | 非甲烷总烃排放速率 | kg/h | 0.0160 | | | 2.80×10-3 | | | | 9 | 去除率 | % | 82.5 | | | | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 监测点位：固化废气排气筒(进口,出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：UV光氧催化 | | 管道截面积(m2)：进口0.0962,出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 16 | | | 20 | | | | \*2 | 废气含湿率 | % | 2.6 | | | 2.4 | | | | \*3 | 测点废气流速 | m/s | 30.5 | | | 12.2 | | | | \*4 | 实测流量 | m3/h | 1.06×104 | | | 1.24×104 | | | | \*5 | 标干流量 | Nm3/h | 9.77×103 | | | 1.14×104 | | | | \*6 | 非甲烷总烃浓度 | mg/m3 | 7.49 | 7.42 | 7.82 | 1.29 | 1.30 | 1.22 | | 7 | 非甲烷总烃排放浓度 | mg/m3 | 7.58 | | | 1.27 | | | | 8 | 非甲烷总烃排放速率 | kg/h | 0.0741 | | | 0.0145 | | | | 9 | 去除率 | % | 80.4 | | | | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 监测点位：切割废气(切割机)排气筒进口(进口、出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.126，出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 20 | | | 23 | | | | \*2 | 废气含湿率 | % | 2.8 | | | 2.6 | | | | \*3 | 测点废气流速 | m/s | 22.8 | | | 12.6 | | | | \*4 | 实测流量 | m3/h | 1.03×104 | | | 1.29×104 | | | | \*5 | 标干流量 | Nm3/h | 8.38×103 | | | 1.17×104 | | | | \*6 | 颗粒物浓度 | mg/m3 | 33 | 32 | 34 | 2.6 | 2.6 | 2.5 | | 7 | 颗粒物排放浓度 | mg/m3 | 33 | | | 2.6 | | | | 8 | 颗粒物排放速率 | kg/h | 0.28 | | | 0.030 | | | | 9 | 去除率 | % | 89.3 | | | | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 监测点位：切割废气(刷板机)排气筒进口(进口、出口) | 采样日期：2019年12月18日 | | 排气筒高度 (米)：15 | 净化装置名称：烧结板除尘器 | | 管道截面积(m2)：进口0.126，出口0.283 | 测试工况负荷(%)：100(由企业方负责人提供) |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | | | | | | 进口 | | | 出口 | | | | \*1 | 测点废气温度 | ℃ | 17 | | | 20 | | | | \*2 | 废气含湿率 | % | 2.9 | | | 2.7 | | | | \*3 | 测点废气流速 | m/s | 23.6 | | | 12.6 | | | | \*4 | 实测流量 | m3/h | 1.07×104 | | | 1.29×104 | | | | \*5 | 标干流量 | Nm3/h | 9.82×103 | | | 1.17×104 | | | | \*6 | 颗粒物浓度 | mg/m3 | 38 | 37 | 39 | 2.1 | 2.4 | 2.4 | | 7 | 颗粒物排放浓度 | mg/m3 | 38 | | | 2.3 | | | | 8 | 颗粒物排放速率 | kg/h | 0.37 | | | 0.027 | | | | 9 | 去除率 | % | 92.7 | | | | | | | \*号的为现场测试参数  结论：2019年12月18日，排气筒出口废气监测结果均符合标准限值要求。 | | | | | | | | |  |  |  | | --- | --- | | 采样日期：2019年12月18日 | 灶头型号：两眼一汤灶 | | 排口编号及属性：/ | 净化装置名称：鼓泡式处理器 | | 烟囱高度(米)：4 | 灶头总数(个)：2.2 | | 实测灶头数(个)：(由企业方负责人提供) | 管道截面积(m2)：0.189 | | \*为现场测试参数 | |  |  |  |  |  | | --- | --- | --- | --- | | 序号 | 项目名称 | 单位 | 监测结果 | | \*1 | 测点废气温度 | ℃ | 23 | | \*2 | 废气含湿率 | % | 3.8 | | \*3 | 测点废气流速 | m/s | 6.1 | | \*4 | 实测流量 | m3/h | 4.22×103 | | \*5 | 标干流量 | Nm3/h | 3.77×103 | | 6 | 饮食业油烟排放浓度 | mg/m3 | 0.343 | | 结论：2019年12月18日排气筒出口油烟排放浓度的监测结果符合标准限值要求。 | | | |   **3、噪声**  表7-8 噪声监测结果   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **测试日期** | **检测**  **点位** | **测试**  **时间** | **主要**  **声源** | **测定值dB(A)， SD无量纲** | | | | | | | | **Leq** | **L10** | **L50** | **L90** | **Lmax** | **Lmin** | **SD** | | 2019.12.17 | 厂界1 | 09:28 | 设备噪声 | 57.2 | 60.4 | 56.2 | 54.6 | 64.7 | 54.2 | 2.3 | | 厂界2 | 09:29 | 设备噪声 | 53.5 | 54.4 | 53.4 | 53.0 | 54.6 | 52.9 | 0.4 | | 厂界3 | 09:33 | 设备噪声 | 57.1 | 60.8 | 55.6 | 54.4 | 61.8 | 54.1 | 2.5 | | 厂界4 | 09:35 | 设备噪声 | 53.3 | 55.4 | 52.6 | 47.8 | 56.4 | 47.1 | 2.6 | | 敏感点 | 09:25 | 设备噪声 | 54.3 | 56.4 | 53.8 | 52.4 | 57.1 | 52.1 | 1.3 | | 2019.12.18 | 厂界1 | 09:27 | 设备噪声 | 57.9 | 59.0 | 57.4 | 56.4 | 61.3 | 56.2 | 1.0 | | 厂界2 | 09:30 | 设备噪声 | 55.0 | 55.8 | 55.0 | 54.2 | 56.0 | 54.0 | 0.5 | | 厂界3 | 09:34 | 设备噪声 | 55.1 | 58.8 | 54.4 | 52.4 | 59.3 | 51.8 | 2.3 | | 厂界4 | 09:37 | 设备噪声 | 55.2 | 58.2 | 55.0 | 51.8 | 62.8 | 50.6 | 2.9 | | 敏感点 | 09:26 | 设备噪声 | 52.7 | 54.4 | 52.4 | 51.0 | 55.0 | 50.4 | 1.1 | | 结论：2019年12月17日-18日，厂界各监测点昼间噪声监测结果均符合标准限值要求。 | | | | | | | | | | |   **三、固废**  表7-9 固废排放情况   | **序号** | **固废名称** | **属性** | **产生量(t/a)** | **处理情况** | | --- | --- | --- | --- | --- | | 1 | 金属边角料及金属屑 | 一般固废 | 9.3 | 物质单位回收处理 | | 2 | 滤纸及针织毡边角料 | 一般固废 | 3 | | 3 | 塑料边角料 | 一般固废 | 2.5 | | 4 | 包装废料 | 一般固废 | 2 | | 5 | 废机械润滑油 | 危险固废 | 0.5 | 委托杭州大地海洋环保股份有限公司处理 | | 6 | 废油脂 | 危险固废 | 0 | 目前尚未产生，产生后须按危废管理要求委托有资质单位处置。 | | 7 | 废手套 | 危险固废 | 0.1 | 进入生活垃圾 | | 8 | 抹布 | 危险固废 | | 9 | 刷子 | 危险固废 | | 10 | 废包装桶 | 危险固废 | 0.5 | 企业重复利用 | | 11 | 废砂轮片 | 一般固废 | 1 | 委托环卫部门统一清运 | | 12 | 生活垃圾 | 一般固废 | 21 |   **四、污染物排放总量核算**  表7-10 总量控制指标   | **控制项目** | **环评预测值** | **实际排放量** | **计算公式** | | --- | --- | --- | --- | | 化学需氧量 | 0.128t/a | 0.09t/a | 排放总量=50mg/L×1800t/a×10-6 | | 氨氮 | 0.013t/a | 0.009t/a | 排放总量=5mg/L×1800t/a×10-6 | | VOCs  (以非甲烷总烃计) | 0.077t/a | 0.0123t/a | 见① | | 颗粒物 | - | 0.222 | 见② | | 备注 | 化学需氧量、氨氮排放浓度为《城镇污水处理厂污染物排放标准》(GB18918-2002)中一级A排放限值。实际年排水量=生活用水×0.85。该企业年生活用水量为2100t，排水系数0.85年废水排放量约为1800t。  年工作时间为：固化500h，胶水1500h，切割900h，打磨焊接1800h。  颗粒物排放速率：激光切割废气3.52×10-3kg/h，打磨焊接1废气0.056kg/h，打磨焊接1废气0.036kg/h，切割（切割）0.030kg/h，切割（刷版）0.029kg/h；  VOCs排放速率：固化排放速率为0.0157kg/h，胶水排放速率为2.96×10-3kg/h。  ①VOCs排放总量：排放总量==胶水废气排放速率×工作时间×10-3+固化废气排放速率×工作时间×10-3=2.96kg/h×10-3×1500h×10-3+0.0157kg/h×500h×10-3=0.0123t/a；  ②颗粒物排放总量：排放总量=激光切割废气排放速率×工作时间×10-3+打磨焊接1废气排放速率×工作时间×10-3+打磨焊接2废气排放速率×工作时间×10-3+切割（切割）废气排放速率×工作时间×10-3+切割（刷版机）废气排放速率×工作时间×10-3  =3.52×10-3kg/h×900h×10-3+0.056kg/h×1800h×10-3+0.036kg/h×1800h×10-3+0.030kg/h×900h×10-3+0.029kg/h×900h×10-3=0.222t/a | | | |

**表八**

|  |
| --- |
| **验收监测结论：**  一、环境保护执行情况  杭州南方环境净化设备有限公司在项目建设中落实了国家建设项目管理的有关规定和杭州市生态环境局余杭分局对该项目环评的有关批复意见，履行了建设项目环境影响审批手续，执行了建设项目环境保护“三同时”的有关要求。  二、废水监测结论  2019年12月17日、18日，污水排放口废水中pH值、化学需氧量、悬浮物、动植物油两天的监测结果均符合《污水综合排放标准》(GB 8978-1996)中表4中的三级排放标准限值的要求；氨氮、总磷两天的监测结果均符合《工业企业废水氮、磷污染物间接排放标准限值》DB 33/ 887-2013表1中的间接排放限值的要求。  2020年03月12日、13日，污水排放口废水中石油类两天的监测结果均符合《污水综合排放标准》(GB 8978-1996)中表4中的三级排放标准限值的要求。  三、废气监测结论  2019年12月17日、18日，废气排气筒出口中颗粒物、非甲烷总烃排放浓度监测结果符合《大气污染物综合排放标准》(GB 16297-1996)和《合成树脂工业污染物排放标准》(GB 31572-2015)的排放限值的要求。  2019年12月17日、18日，厂界上、下风向上的四个监测点、非甲烷总烃和颗粒物最大值均符合执行《合成树脂工业污染物排放标准》(GB31572-2015)表 9 规定的限值要求。  2019年12月17日、18日，食堂油烟废气排气筒出口废气中油烟排放浓度监测结果符合《饮食业油烟排放标准(试行)》(GB 18483-2001)表2中规定的饮食业单位的油烟最高允许排放浓度值。  四、噪声监测结论  2019年12月17日、18日，企业厂界各测点昼间噪声监测结果均符合《工业企业厂界环境噪声排放标准》(GB 12348-2008)中2类标准限值。  五、总量控制  本项目主要污染物实际排放量，化学需氧量0.09t/a，氨氮0.009t/a，VOCs0.0123t/a，颗粒物0.222t/a，其中颗粒物不纳入环评审批总量控制要求，其余均符合环评审批总量控制要求。 |

**建设项目工程竣工环境保护“三同时”验收登记表**

填表单位(盖章)：杭州广测环境技术有限公司 填表人(签字)： 项目经办人(签字)：

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **建设项目** | **项目名称** | | | 杭州南方环境净化设备有限公司年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台生产项目 | | | | | | **项目代码** | | 2019-330110-35-03-023798-000 | | **建设地点** | | | | 杭州市余杭区良渚街道杜城村 | | | |
| **行业类别(分类管理名录)** | | | C3591环境保护专用设备制造 | | | | | | **建设性质** | | □新建 ☑扩建 □技术改造 | | | | **项目厂区中心经度/纬度** | | | |  | |
| **设计生产能力** | | | 年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台 | | | | | | **实际生产能力** | | 年产各式除尘器6000台、烧结板50000件、滤筒5万件、风阀2000件、风管5万米、离心风机500台、火花捕集器3000台 | | | **环评单位** | | | | | 浙江联强环境工程技术有限公司 | |
| **环评文件审批机关** | | | 杭州市生态环境局余杭分局 | | | | | | **审批文号** | | 环评批复[2019]133号 | | | **环评文件类型** | | | | | 报告表 | |
| **开工日期** | | | 2019.06 | | | | | | **竣工日期** | | 2019.09 | | | **排污许可证申领时间** | | | | | / | |
| **环保设施设计单位** | | | / | | | | | | **环保设施施工单位** | | / | | | **本工程排污许可证编号** | | | | | / | |
| **验收单位** | | | 杭州南方环境净化设备有限公司 | | | | | | **环保设施监测单位** | | 杭州广测环境技术有限公司 | | | **验收监测时工况** | | | | | 正常 | |
| **投资总概算(万元)** | | | 957.1 | | | | | | **环保投资总概算(万元)** | | 45 | | | **所占比例(%)** | | | | | 4.70 | |
| **实际总投资(万元)** | | | 957.1 | | | | | | **实际环保投资(万元)** | | 205.5 | | | **所占比例(%)** | | | | | 21.47 | |
| **废水治理(万元)** | | | 2.5 | **废气治理(万元)** | 189 | **噪声治理(万元)** | | 5.0 | **固体废物治理(万元)** | | 2.0 | | **绿化及生态(万元)** | | | | / | **其他(万元)** | | 7.0 |
| **新增废水处理设施能力** | | | / | | | | | | **新增废气处理设施能力** | | / | | **年平均工作时** | | | | 3900h | | | |
| **运营单位** | | | | 杭州南方环境净化设备有限公司 | | | | **运营单位社会统一信用代码(或组织机构代码)** | | | |  | | **验收时间** | | | | 2019年12月17日、18日  2020年03月12日、13日 | | | |
| **污染物排放达**  **标与总量控制(工业建设项**  **详填)** | | **污染物** | | **原有排**  **放量(1)** | **本期工程实际排放浓度(2)** | **本期工程允许排放浓度(3)** | **本期工程产生量(4)** | **本期工程自身削减量(5)** | | **本期工程实际排放量(6)** | **本期工程核定排放总量(7)** | | **本期工程“以新带老”削减量(8)** | **全厂实际排放总量(9)** | | | **全厂核定排放总量(10)** | | **区域平衡替代削减量(11)** | | **排放增减量(12)** |
| **废水** | |  |  |  |  |  | |  |  | |  | 0.18 | | | 0.21 | |  | |  |
| **化学需氧量** | |  |  |  |  |  | |  |  | |  | 0.09 | | | 0.128 | |  | |  |
| **氨氮** | |  |  |  |  |  | |  |  | |  | 0.009 | | | 0.013 | |  | |  |
| **VOC** | |  |  |  |  |  | |  |  | |  | 0.0123 | | | 0.077 | |  | |  |
| **二氧化硫** | |  |  |  |  |  | |  |  | |  |  | | |  | |  | |  |
| **氮氧化物** | |  |  |  |  |  | |  |  | |  |  | | |  | |  | |  |
| **工业粉尘** | **粉尘** |  |  |  |  |  | |  |  | |  | 0.222 | | | - | |  | |  |

**注**：1、排放增减量：(+)表示增加，(-)表示减少。2、(12)=(6)-(8)-(11)，(9)= (4)-(5)-(8)- (11) +(1)。3、计量单位：废水排放量——万吨/年；废气排放量——万标立方米/年；工业固体废物排放量——万吨/年；水污染物排放浓度——毫克/升