MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

August 10, 2015

PERMIT TO INSTALL
120-15

ISSUED TO
3S International, LLC

LOCATED AT
27050 Trolley Industrial Drive
Taylor, Michigan

IN THE COUNTY OF
Wayne

STATE REGISTRATION NUMBER
P0621

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: **June 25, 2015**	
DATE PERMIT TO INSTALL APPROVED: **August 10, 2015**	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
CO_2e	Carbon Dioxide Equivalent	°F	Degrees Fahrenheit
COM	Continuous Opacity Monitoring	gr	Grains
EPA	Environmental Protection Agency	Hg	Mercury
EU	Emission Unit	hr	Hour
FG	Flexible Group	H_2S	Hydrogen Sulfide
GACS	Gallon of Applied Coating Solids	hp	Horsepower
GC	General Condition	lb	Pound
GHGs	Greenhouse Gases	kW	Kilowatt
HAP	Hazardous Air Pollutant	m	Meter
HVLP	High Volume Low Pressure *	mg	Milligram
ID	Identification	mm	Millimeter
LAER	Lowest Achievable Emission Rate	MM	Million
MACT	Maximum Achievable Control Technology	MW	Megawatts
MAERS	Michigan Air Emissions Reporting System	ng	Nanogram
MAP	Malfunction Abatement Plan	NO_x	Oxides of Nitrogen
MDEQ	Michigan Department of Environmental Quality (Department)	PM	Particulate Matter
MSDS	Material Safety Data Sheet	PM10	PM with aerodynamic diameter ≤10 microns
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM2.5	PM with aerodynamic diameter ≤ 2.5 microns
NSPS	New Source Performance Standards	pph	Pounds per hour
NSR	New Source Review	ppm	Parts per million
PS	Performance Specification	ppmv	Parts per million by volume
PSD	Prevention of Significant Deterioration	ppmw	Parts per million by weight
PTE	Permanent Total Enclosure	psia	Pounds per square inch absolute
PTI	Permit to Install	psig	Pounds per square inch gauge
RACT	Reasonably Available Control Technology	scf	Standard cubic feet
ROP	Renewable Operating Permit	sec	Seconds
SC	Special Condition	SO_2	Sulfur Dioxide
SCR	Selective Catalytic Reduction	THC	Total Hydrocarbons
SRN	State Registration Number	tpy	Tons per year
TAC	Toxic Air Contaminant	µg	Microgram
TEQ	Toxicity Equivalence Quotient	VOC	Volatile Organic Compound
VE	Visible Emissions	yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**

2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**

3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**

4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**

5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**

6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **()**

7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**

8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.

9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
    a. A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
    b. A visible emission limit specified by an applicable federal new source performance standard.
    c. A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EURECYCLER1	One enclosed electronics and fluorescent light bulb recycling unit controlled by negative pressure, a pre-filter, a dust filter, a HEPA filter, and an activated carbon filter.	FGRECYCLERS
EURECYCLER2	One enclosed electronics and fluorescent light bulb recycling unit controlled by negative pressure, a pre-filter, a dust filter, a HEPA filter, and an activated carbon filter.	FGRECYCLERS
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.		

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGRECYCLERS	Two enclosed electronics and fluorescent light bulb recycling units controlled by negative pressure, a pre-filter, a dust filter, a HEPA filter, and an activated carbon filter.	EURECYCLER1, EURECYCLER2

The following conditions apply to: FGRECYCLERS

DESCRIPTION: Two enclosed electronics and fluorescent light bulb recycling units controlled by negative pressure, a pre-filter, a dust filter, a HEPA filter, and an activated carbon filter.

Emission Units: EURECYCLER1, EURECYCLER2

POLLUTION CONTROL EQUIPMENT: Recycling units are kept under negative pressure. Emissions are further controlled by a pre-filter, a dust filter, a HEPA filter, and an activated carbon filter impregnated with sulfur.

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

1. The permittee shall not process more than 9,636 tons of fluorescent light bulbs per year in FGRECYCLERS per 12-month rolling time period. **(R 336.1224, R 336.1225)**

2. The permittee shall not process more than 19,272 tons of electronics per year in FGRECYCLERS per 12-month rolling time period. **(R 336.1224, R 336.1225)**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. EURECYCLER1 and EURECYCLER2 shall be installed, maintained, and operated in a satisfactory manner to minimize emissions to the ambient air. Recommended Best Management Practicies for Recycling Units and Recommended Best Management Practices for Lamp Handling & Storage are specified in Appendices 1 and 2. **(R 336.1224, R 336.1225, R 336.1910)**

2. The permittee shall maintain and operate EURECYCLER1 and EURECYCLER2 according to the manufacturer's specifications and procedures. **(R 336.1224, R 336.1225, R 336.1910)**

3. The permittee shall minimize the time necessary to change-out the processed materials container portions of FGRECYCLERS. All container change-outs shall be performed according to the manufacturer's specifications and procedures. **(R 336.1224, R 336.1225)**

4. The permittee shall completely replace the carbon within the activated carbon or replace the entire activated carbon filter, a minimum of once every two calendar years. Alternatively, the permittee may demonstrate at the end of two years, and at least once per year thereafter, that the activated carbon filter is still effective. **(R 336.1224, R 336.1225, R 336.1910)**

5. All broken glass and metal pieces collected by FGRECYCLERS shall be properly handled, transported, and disposed of in accordance with all applicable State rules and federal regulations. **(R 336.1224, R 336.1225)**

6. All mercury containing materials produced in FGRECYCLERS, including spent filters and activated carbon, shall be properly handled, transported, and disposed of in accordance with all applicable State rules and federal regulations. **(R 336.1224, R 336.1225)**

7. The permittee shall maintain negative pressure in EURECYCLER1 or EURECYCLER2 for a minimum of 10 minutes after placing the last fluorescent light bulb into the respective unit. **(R 336.1224, R 336.1225)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EURECYCLER1 or EURECYCLER2 unless the pre-filter, dust filter, HEPA filter and activated carbon filter on the respective unit are installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1910)**

2. The permittee shall not operate EURECYCLER1 or EURECYCLER2 without having the unit under negative pressure. The permittee shall verify that the units are under negative pressure before each use according to manufacturer's recommended procedures. **(R 336.1224, R 336.1225, R 336.1910)**

V. TESTING/SAMPLING

1. If the activated carbon filter or the carbon within the filter is not replaced at the end of two calendar years, the permittee shall demonstrate, to the satisfaction of the AQD, the effectiveness of the activated carbon filter. If control device destruction efficiency testing is required in order to complete this demonstration, the permittee shall submit to the AQD a methodology outlining how the testing will be performed, no less than 60 days prior to completing the demonstration. The AQD must approve the testing methodology prior to completing the demonstration. Submittal of a complete report of the demonstration results shall be submitted to the AQD within 60 days following the last date of the demonstration. **(R 336.1224, R 336.1225, R 336.1910, R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep the following information on a monthly basis for FGRECYCLERS:
   a. The pounds of fluorescent light bulbs processed per calendar month.
   b. The pounds of fluorescent light bulbs processed per 12-month rolling time period as determined at the end of each calendar month.
   c. The pounds of all electronics processed per calendar month.
   d. The pounds of all electronics processed per 12-month rolling time period as determined at the end of each calendar month.

   The permittee shall keep all records on file at the facility and make them available to the Department upon request. **(R 336.1224, R 336.1225)**

2. The permittee shall keep, in a satisfactory manner, records indicating when the pre-filter, dust filter, HEPA filter, the activated carbon, and/or entire activated carbon filters were replaced. **(R 336.1224, R 336.1225, R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

APPENDIX 1

Recommended Best Management Practices for Recycling Units

1. The recycling units should be commercially manufactured by a reliable manufacturer. The recycling units should have a vacuum pump to create negative internal pressure and well designed and tightly fitted seals at all connection points. The recycling units must include a pre-filter, dust filter, HEPA filter, and activated carbon filter to control particulate emissions.

2. All operators should be trained in the proper maintenance and operation of the recycling units. This includes inspection of the recycling units to determine proper assembly, damage or wear; feeding spent lamps into the recycling units; changing filters and carbon; and proper cleanup of broken lamps or electronics.

3. Before each use, the operator should inspect the recycling units for damage or worn components; improper assembly; missing, damaged or improperly fitted seals; seal integrity between connection points; proper vacuum (negative pressure); and proper air flow.

4. The recycling units should be operated according to manufacturer's recommendations.

5. The manufacturer's recommended maintenance schedule should be followed for filter and carbon change outs. A maintenance log should be kept with the recycling units recording all filter and carbon changes and other maintenance.

6. Container change-outs should be performed according to the manufacturer's specifications and procedures. Before changing a container, allow the contents to settle for at least 15 minutes. The full container should be covered as quickly as possible and tightly sealed.

7. The recycling units should not be used if there is phosphor (white powder) on or around the recycling units; there is any damage to the recycling units, especially the vacuum system, seals or filters; or the recycling units have been incorrectly assembled or modified in any way.

8. Containers containing processed lamps should be managed according to applicable federal and state regulations and sent to a commercial recycler. Processed lamp containers should be structurally sound and well-sealed. Processed lamps/electronics should not be transferred to a different container. Containers containing processed lamps/electronics should not be stored in an area where the temperature is elevated (e.g., boiler room) or in the direct sun. A cleanup plan should be developed in the event a container of processed lamps/electronics is spilled. The plan should incorporate procedures recommended by the equipment manufacturer, as well as standard industry practices.

APPENDIX 2

RECOMMENDED BEST MANAGEMENT PRACTICES FOR LAMP HANDLING & STORAGE

1. Storage of Lamps - Designate an area within your facility to store lamps.

- Storage locations should be away from high-traffic areas.
- Larger facilities may need more than one location for easier access.
- Storage rooms should be clean, dry and free of broken lamp debris.
- Areas should ideally have an air handling system that is independent from the rest of the building that does not re-circulate air or reintroduce air through vents and intakes.

2. Handling Spent Lamps – Employees should know whom to call if a lamp is burned out.

- Trained employees should remove lamps carefully to prevent breakage.
- Spent lamps should immediately be stored in a sturdy container.
- Spent lamps should not be left in a position or in an area where they can be easily broken.

3. Storage of Spent Lamps - Spent lamps can be put back into original boxes, or specially made lamp containers can be purchased for spent lamp storage.

- Containers should be closed, structurally sound, and constructed to provide protection from breakage during storage and transportation.
- Containers should lack evidence of leaks, spills or damage that could cause leaks or a release of mercury.
- Containers should be stable and stored in such a way that they will not easily tip over.
- Do not pack too many lamps into a container - the pressure could lead to breakage.
- Do not stack containers too high – addition weight of the pile could crush lamps on the bottom.
- Do not tape lamps together or use rubber bands.
- Clearly identify containers of spent lamps (e.g., Waste Lamps or Used Lamps)
- Close and securely seal containers with tape.

4. Handling Broken Lamps – Broken lamps release mercury and may present health hazards. Follow MIOSHA, EPA, and state regulations when managing broken lamps.

- Create procedures for reporting and managing broken lamps. Post these procedures in areas where fluorescent lamps are handled or stored.
- Follow the clean-up procedure at www.epa.gov/mercury/spills/index.htm#fluorescent. Clean-up procedures (specific instructions and clean-up contact) should be posted in areas where fluorescent lamps are handled or stored.
- Keep broken lamps in a sealed container, and keep the container in a cool place, away from high-traffic areas, preferably outdoors.
- Keep cleaning implements used for broken lamps in the room or area and do not use them elsewhere in the facility.
- Do not open containers of broken lamps to add or remove broken lamps.