DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

P091559595

FACILITY: Jackson Metal Cleaning		**SRN / ID:** P0915
LOCATION: 1492 West Grand River Avenue, WILLIAMSTON		**DISTRICT:** Lansing
CITY: WILLIAMSTON		**COUNTY:** INGHAM
CONTACT: Tyler Lang , Owner		**ACTIVITY DATE:** 08/31/2021
STAFF: Michelle Luplow	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Onsite, scheduled, announced compliance inspection to determine compliance with General PTI 70-18 and PTI 86-20.		
RESOLVED COMPLAINTS:		

Inspected by: Michelle Luplow

Personnel Present: **Tyler Lang, Manager (tlang@jacksonmetalcleaning.com)**

Brian Doherty, Operations staff

Purpose

Conduct an announced, onsite, scheduled compliance inspection of Jackson Metal Cleaning to determine compliance with General PTI 70-18 for a natural gas-fired burnoff oven that burns off paint and powder coating, and with PTI 86-20 for a natural gas-fired burnoff oven for burnoff of HAP-containing residues The facility was last inspected in January 2019.

Facility Background/Regulatory Discussion

Jackson Metal Cleaning is a thermal cleaning service for removal of various polymers, paints, etc from metal substrates. Jackson Metal Cleaning was a minor source of HAPs and criteria air pollutants upon being issued General PTI 70-18 for their first natural gas-fired burnoff oven. With the issuance of PTI 86-20, Jackson Metal Cleaning became a synthetic minor source of HAPs, and therefore is required to submit annual emissions reports to MAERS and has been added to AQD's list of CMS sources.

Dave Thompson, permit engineer for PTI 86-20, explained the following for the PTE for a single HAP being greater than 10 tpy and why the source is considered a synthetic minor for HAPs:

> **"Based on the information I was provided for the oven, which was a maximum load capacity of 125 lb/batch of material, the maximum pounds of HCl emitted per batch using the worst-case material would be 33.42. Unless there is a stack test showing the actual emission profile of that oven, we assume the worst-case scenario of all HCl being emitted in a single hour because it has a 1-hour ITSL.**
>
> **That being said, the PTE for HCl would not be 33.42 lb/hr * 8,760 hours. The 33.42 value is a pound per batch emission rate. Jackson Metal stated that the batch time is 12 hours, which equates to 760 batches/year. The PTE for HCl without the material limits in SC II.2 would be:**
>
> **PTE for HCl w/o annual material restrictions (tpy) = 33.42 lb/batch * 760 batches/year * (1 ton/2,000 lb) = 12.7 tpy**

> **The calculation in the Rule 224 T-BACT section of the eval document has the synthetic minor calculation for HCl with the material limits as listed in the PTI (0.71 tpy). The material limits in SC II.2 are the synthetic minor restrictions for the facility."**

Jackson Metal Cleaning is located within Building #2 at Michigan Woodworking, located at 1492 E. Grand River in Williamston. Michigan Woodworking owns the building that Jackson Metal Cleaning is leasing and working out of. As a note for future inspections, if conducting an unannounced inspection, you may have to request Michigan Woodworking staff unlock the gate in order to enter their facility and reach Building #2. See attached map for location.

Jackson Oven Supply, located in Jackson, Michigan, is the manufacturer of Jackson Metal's burnoff ovens.

Inspection

I arrived at Jackson Metal Cleaning at approximately 8:10 a.m. August 31, 2021. I met with Tyler Lang, Manager, and Brian Doherty, operations staff. Neither of the burnoff ovens were being operated during the inspection and T. Lang said that they would not be operating until the following morning.

T. Lang said Magna DexSys (P0429), DuBois Chemical/Chrysler, and SMR are the 3 main customers that use Jackson Metal Cleaning services under the General PTI 70-18 (burnoff of powdercoat or paint). Because of the global microchip shortage, this portion of the business has slowed some due to manufacturing shutdowns at these 3 facilities. Currently DexSys is shut down, which is Jackson Metal Cleaning's main overall customer. Connecticut Rubber, Boge Rubber, and Caster Concepts are the three companies from which Jackson Metal Cleaning receives items for burnoff under PTI 86-20.

Under normal circumstances (no microchip shortages), T. Lang said Jackson Metal Cleaning operates 5 days per week, Monday – Friday. There are typically 3 shifts: 6:30 a.m. – 2:30 pm., 2:30 p.m. – 6:00 p.m. (if there are staff available to run the ovens) and 6:00 p.m. – 2:30 a.m. During normal operations Jackson Metal Cleaning would receive 20-30 racks per day, but they currently only receive about 5 per day.

PTI 86-20: EU-BURNOFF

This permit covers a natural gas-fired burnoff oven used to remove cured paints, grease, oil, and limited amounts of other materials including rubber and caster wheel polyurethane coatings, and ADH glass bonding materials from metal parts by thermal decomposition in a primary chamber. The oven is equipped with a secondary chamber/afterburner control system.

Rubber and caster wheel polyurethane coatings have been burned off in this oven, as well as parts that are processed in the General PTI 70-18 burnoff oven (paints and powder coats) thus far. No ADH glass bonding materials have been processed from start date through the date of inspection. T. Lang said the length of time the materials are in the oven depends on the type of materials. He said that polyurethane and rubber take longer than paint, and typically that 60-80 lbs of polyurethane or rubber materials take 8-12 hours for proper burnoff to occur.

There are no Testing/Sampling requirements for EU-BURNOFF under PTI 86-20 at this time.

Emission Limits

There shall be no visible emissions from EU-BURNOFF. This emission unit was not operating during this inspection and therefore AQD was unable to verify compliance with visible emission at this time.

Material Limits & Monitoring/Recordkeeping

Neoprene rubber (from the company, Connecticut Rubber) and natural rubber (from the company, Boge) removal rates are each limited to 96.0 lbs/batch and a chlorine content limit of 26.0% by weight. Caster wheel polyurethane coatings (from Caster Concepts) have a chlorine content limit of 1.0% by weight. Jackson Metal Cleaning is required to keep a current listing from the manufacturer of the chemical composition of each material processed, including the weight percent of each component and information that shows compliance with the 26.0% and 1.0% chlorine content limits for neoprene and natural rubbers, and caster wheel polyurethane, respectively. They are also required to keep records of the pounds of neoprene rubber and natural rubber materials separately that are removed in the burnoff oven per each oven batch, by weighing the parts processed before and after oven processing to determine a total removed. Each batch of parts is required to be cleaned of excess ash and other residue prior to weighing to ensure an accurate removal rate is determined.

Burnoff records, attached, indicate that the natural and neoprene rubbers were only processed in this oven during the month of April 2021. The largest quantity of rubber removed per batch was on April 15, 2021 at 78.0 lbs/batch of Connecticut Rubber. I reminded T. Lang that the excess ash must be cleaned off prior to weighing the post-burned racks to ensure an accurate removal rate is determined. He verbally acknowledge that this would be done after every burnoff.

T. Lang provided me with the SDS sheets that were submitted during the permit application for Connecticut Rubber, Boge Rubber and Caster Concepts (polyurethane) as well as information from the manufacturer describing how these materials meet the chlorine content limits. See Table 1. This information is sufficient for documentation of the chlorine contents at this time, considering the process is still new; however, future inspections may require that AQD ask for updated information or statements from the manufacturer's of these compounds to ensure none of the information provided during this inspection has changed.

As noted in Table 1, the Curene 442 polyurethane material has a 0.68% chlorine content. This chlorine content is based on information provided to Dave Thompson from the manufacturer. It is the AQD inspector's job to have Jackson Metal Cleaning supply AQD with a manufacturer's guarantee that the MOCA component of the polyurethane does not exceed 2.6% by weight of the polyurethane. This will ensure that the chlorine content of the Curene 442 is within the limits defined in the permit for polyurethane coatings. Future inspections and records reviews should also include verifying that the SDS's provided for this inspection, attached, are still representative of the coatings that Jackson Metal Cleaning is burning off. See the excerpt from Dave Thompson's permit evaluation:

> **"Also, the polyurethane coating contains far less chlorine (0.68 wt%) than previously reviewed for PTI No. 366-08B. The updated chlorine content is based on the maximum mix ratio for the MOCA (4,4'-methylene bis(2-chloroaniline)) component in the polyurethane coating, as provided by JMC's customer (2.6 wt%), and the chlorine percentage of MOCA (26.2 wt%). The chlorine content is calculated by the following equation:**
>
> $$Cl\ content\ of\ polyurethane\ (wt\ \%) = weight\ \%\ chlorine\ in\ MOCA\ (26.2) * maximum\ MOCA\ in\ mixture\ (2.6\ wt\%) = 0$$

A safety factor was added and a 1.0 wt% Cl content was used for polyurethane coating calculations."

Additionally, Jackson Metal Cleaning should be keeping all emails and other information from the manufacturer/supplier that describe the chlorine content of each compound. It is Jackson Metal Cleaning's responsibility to ensure they have the most up-to-date SDS and supplier information with regard to chlorine content of the materials that are processed in the burn off oven, and that they have this information readily available for review for all AQD inspections.

Neoprene and natural rubber is limited to 5,000 lbs removed per year, and caster wheel polyurethane coatings are limited to 7,500 lbs removed per year. The 12-month rolling records provided cover from February 2021 – July 2021 (beginning at startup). During this time, 892 lbs of polyurethane coatings were removed and 163 lbs of natural rubber and neoprene rubber combined were removed.

Table 1. Chlorine Content Limits Demonstrations

Compound/Chemical (per SDS)	Compound Type	Manufacturer's Statement (to Dave Thompson, AQD Permit Engineer)	Chlorine Content (%)
50D NR	Rubber	Email dated 9-8-2020 The statement from section 10 [of the SDS] isn't specific to just this compound, it is a general warning which would include fluoroelastomers which due to their fluorine content makes them worth noting specifically. The 50D NR 2 does not have any halogenated ingredients. The sentence warning about fluoroelastomers being kept below 200C doesn't apply since the material in question is based on natural rubber. Hope that helps, Michael T. Jackson Senior Technologist, Burton Mobile: 440.321.2618 Office: 440.834.5504 Email: Michael.t.jackson@hexpol.com HEXPOL Burton 14330 Kinsman Road Burton, OH 44021 United States	0

44038A	Rubber	Email dated 9-11-2020	26
44048A	Rubber	As far as the RS44038 and [440]48 go, the quantity of chlorine in polychloroprene rubber is approximately 35 mole-percent. In the finished compounds, this would translate into far less than 0.01%. Let me know if this helps. Best regards, J.Turner Lab Man R&S Processing 562 / 531 – 1403 Email dated 9-15-20 (per D. Thompson Evaluation) After further discussion with the supplier for the neoprene rubber materials on 9/11/2020, there was a misunderstanding of what information was required for the purposes of the permit application. The supplier provided information on a molar basis, not a weight basis, which could have resulted in much lower chlorine contents provided than what are actually in the rubber materials[…]The AQD received this information from the supplier on 9/15/2020. The rubber materials are 65 wt% polychloroprene, which is 40 wt% chlorine. Therefore, the rubber materials calculate out to 26 wt% chlorine (65 wt% * 40 wt%)	
Curene 45	Polyurethane	SDS states 100% 1,4-butanediol (CAS# 110-63-4), therefore no chlorinated compounds are present in this material	0
Curene 442	Polyurethane	SDS states >90% of material is a chlorinated compound (MOCA, CAS# 101-14-4). See discussion in inspection report from D. Thompson's permit evaluation for how the chlorine content of this material was determined.	0.68
Curene BA 1000	Polyurethane	SDS states 100% hexanedioic acid (CAS# 25103-87-1) polymer w/ 1,4-butanediol, therefore no chlorinated compounds are present in this material.	0

Process/Operational Restrictions, Design/Equipment Parameters, & Monitoring/Recordkeeping

Jackson Metal Cleaning is required to operate EU-BURNOFF according to the manufacturer's recommendations. Satisfactory operation includes operating the secondary chamber/afterburner at a minimum temperature of 1400° F. Continuous records of the temperature in the secondary chamber/afterburner are required to be kept.

T. Lang provided me with February – July 2021 chart recorder records which are used to continuously record both the primary chamber (red line) and secondary chamber (green line) temperatures (see attached for examples). Review of the records found that the afterburner was predominantly operated at 1500°F, but on several occasions operated at 1600°F. T. Lang said the primary chamber set point is 800°F; the high temperature

setpoint is 950°F. Water misters are used to take the temperature back down to ensure the afterburner isn't overloaded with smoke.

The automatic temperature control system for the primary chamber and secondary chamber/afterburner should be installed, maintained, calibrated and operated in a satisfactory manner, which includes calibrating the thermocouples for the primary and secondary chamber/afterburner at least once per year and keeping records of these calibrations. T. Lang provided me calibration records for the thermocouples on the newly installed burnoff oven. The afterburner thermocouples (Honeywell 2500), temperature controller thermocouple (Honeywell 3500), and temperature recorder were last calibrated in February 2021, see attached calibration certificates.

An interlock system is also required to be installed, maintained, and operated in a satisfactory manner, which shuts down the primary chamber burner when the secondary chamber/afterburner is not operating properly; when natural gas supply pressure is too high or too low; when the water supply pressure is too low; when the primary chamber has excess temperature; and when the afterburner chamber has excess temperature. T. Lang said they have high limit controllers: if the afterburner or oven reaches an excess temperature of 2000°F, the afterburner will shut down and at 2200°F the water misting system, located in the primary chamber, will turn on to reduce the temperature in the primary chamber. If there is not enough water to spray (low water pressure) the system will also shut itself down. There is also a flame detection unit, where if there is no flame present a signal is sent to the control panel to shut the oven down. Before every burnoff oven start up, T. Lang said they test-run the misters to ensure they are operating properly. The system detects whether all misters are operating as well, and once this check is complete, the afterburner will turn on. Meters to monitor the gas pressure are also installed. If the gas pressure drops the oven will shut itself down.

Reporting

Within 30 days after the completion of the installation of EU-BURNOFF, Jackson Metal Cleaning is required to submit a notice of completion. Jackson Metal Cleaning provided this notification along with the other records requested after the inspection on September 8, 2021. Installation was complete on February 9, 2021. Although this notice is late, AQD has the notification and therefore a violation will not be cited for the late notice.

Stack/Vent Restrictions

The stack is required to be a minimum of 34' above ground level and exhaust gases are required to be discharged unobstructed vertically upwards to ambient air. The stack for the general permit burnoff oven is the same height as the stack for the PTI 86-20 burnoff oven, based on onsite observations. According to inspection notes from the previous inspection, the stack height for the general permit burnoff oven is 36' in height, therefore, this stack meets the 34' minimum stack height. AQD may choose to use the Nikon rangefinder in the future to verify these stack heights.

General PTI 70-18: EU-BURNOFF

General PTI 70-18 permits one burnoff oven (EU-BURNOFF) that is natural gas-fired, with a secondary chamber or afterburner, used to remove cured paints, oil or grease from metal parts by thermal decomposition in a primary chamber. The afterburner and primary oven chamber are equipped with automatic temperature controllers, although the oven temperature can also be manually adjusted.

This unit was not operating during the inspection.

Emission Limits **This emission unit was not operating during this inspection and therefore AQD was unable to verify compliance with visible emission at this time.**

Material Limits, Process/Operational Restrictions & Monitoring/Recordkeeping

Jackson Metal is permitted to burn off only cured paints, oil or grease on metal parts and thermal destruction or removal of rubber, plastics, uncured paints, or any other materials in this oven that contain sulfur or halogens, such as plastisol, PVC or Teflon are not permitted. Transformer cores are also not permitted to be loaded into EU-BURNOFF. No fuels, except for natural gas, are allowed to be burned inside EU-BURNOFF. B. Doherty verified that the unit is natural gas-fired and that currently they are only burning off paint and powder coat. T. Lang said that they do not obtain an SDS for every single paint that is on these parts, but have SDS for primer, clear coat, and a few of the 400 colors. He confirmed that the formulations of the various colors are the same, the only difference is the pigment/color additive for the various paint colors that are sprayed on parts from these facilities.

A current listing from the manufacturer of the chemical composition of each material processed in EU-BURNOFF (including wt% of each component) is required to be kept. T. Lang provided me with the 8 SDS's for the coatings being burned off. Attached is one of the SDS's, as an example. I reviewed all SDS's and verified that none of the coatings contain sulfur or halogens, plastisol, PVC, or Teflon.

Design/Equipment Parameters & Monitoring/Recordkeeping

The afterburner is required to be installed, maintained and operated in a satisfactory manner, where satisfactory operation includes maintaining a minimum of 1400°F in the afterburner. The temperature in the afterburner is therefore required to be continuously monitored and continuously recorded (a minimum of one data point every 15 seconds) to demonstrate satisfactory operation. A device to continuously monitor and record the temperature in the afterburner is also required to be installed, calibrated, maintained and operated in a satisfactory manner.

A digital continuous temperature monitoring device has been installed. T. Lang provided temperature records (logged in Excel) for February 2020 – July 2021. Temperature data points are recorded every minute. The data also shows that the afterburner is heated up to 1500°F before the oven is heated up to 800°F to initiate burnoff processes. Records reviewed indicate compliance with the requirement to maintain the afterburner at a minimum of 1400°F and that the automatic temperature control system is operating properly.

Thermocouples in the oven and afterburner are required to be calibrated at least once per year. B. Doherty said that their internal service technician calibrates the thermocouples every quarter. T. Lang provided me with records for the last 2 calibrations both the oven and afterburner thermocouples. Calibrations were conducted on 3/4/20 and 2/9/21 (annually). See attached. Jackson Metal Cleaning is meeting this requirement.

Jackson Metal Cleaning is required to ensure that an interlock system that shuts down the primary chamber burner when the afterburner is not operating properly is installed, maintained, and operated in a satisfactory manner and is also required to maintain records from the manufacturer that demonstrate EU-BURNOFF is equipped with an afterburner, automatic temperature control system, for the primary chamber and afterburner, and an interlock system that shuts down the primary chamber burner when the afterburner is not operating properly. T. Lang stated that the interlock system, high temperature set points, etc, on this burnoff oven are the same systems in place as the burnoff oven permitted under 86-20.

Recordkeeping/Reporting/Notification

Jackson Metal Cleaning is required to keep records of the date, duration and description of any malfunction of the control equipment. T. Lang stated that there have been no malfunctions since EU-BURNOFF first became operational but acknowledged that they will be keeping records of all malfunctions in the future.

Records of any maintenance performed is also required. T. Lang provided me with 2021 maintenance records, attached.

Stack/Vent Restrictions

The exhaust gases from EU-BURNOFF are to be discharged unobstructed vertically upwards to the ambient air with an exit point not less than 1.5 times the building height. Attached is a photo of the building exterior with stack taken at the inspection. T. Lang provided a building design document during the 2019 inspection stating that the height of the building, from ground level to apex, is 22'. The stack height is therefore required to be at least 33'. The stack design document shows a stack height of 36', therefore demonstrating compliance with the stack height requirement.

Compliance Statement

Jackson Metal Cleaning appears to be in compliance with General PTI 70-18 and PTI 86-20 at this time.

Image 1(Facility Location) : Circle represents the entrance, which is gated and may be shut. Building #2 is the location of Jackson Metal Cleaning.

Image 2(Stacks) : Stacks for both burnoff ovens

Image 3(General PTI oven) : General PTI burnoff oven, larger of the two ovens.

Image 4(PTI 86-20 oven) : Smaller oven used for burning off chlorinated compounds

Image 5(PTI 86-20) : Manufacturer's plate information for burn off oven permitted under PTI 86-20. Heat input is a combination of the oven and afterburner heat inputs.

Image 6(PTI 86-20) : Temperature controls (afterburner and oven) for the burnoff oven permitted under PTI 86-20 for continuous monitoring.

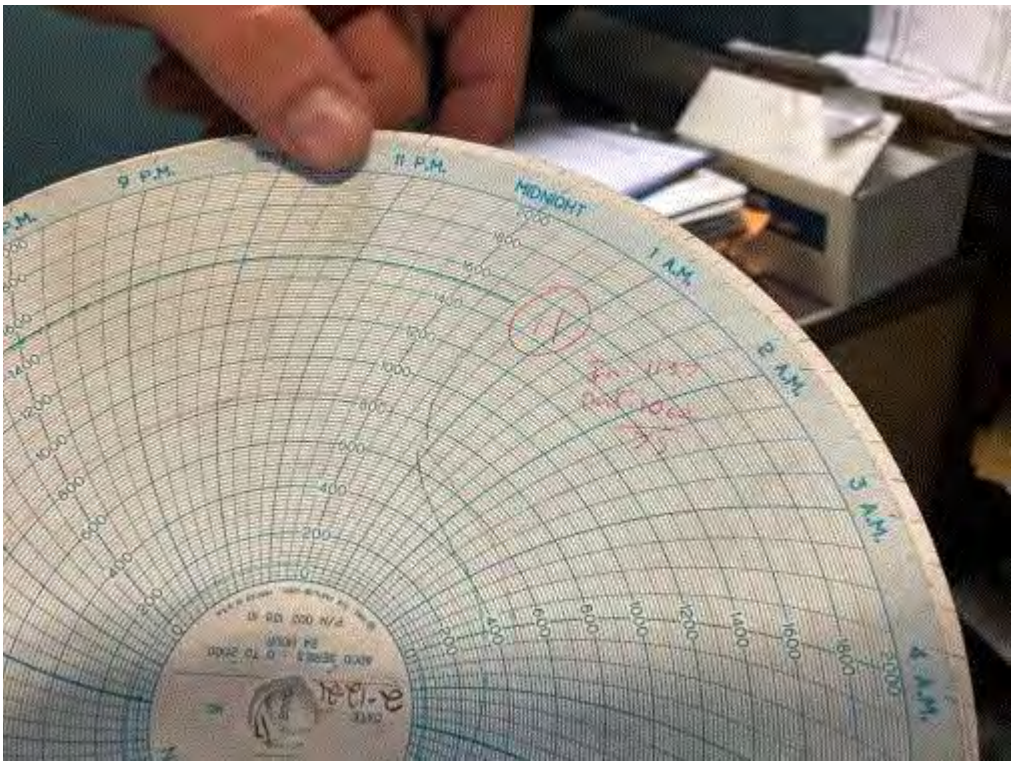


Image 7(PTI 86-20) : Example of continuous temperature records for the oven and afterburner for the burnoff oven permitted under PTI 86-20

Image 8(General PTI 70-18) : Temperature Controller/monitor for burnoff oven permitted under General PTI 70-18. Include compact disk to save all data electronically.

Image 9(Spray Nozzles) : Spray nozzles located in burnoff oven as part of an interlock system to shutdown the oven and bring oven temperature down in the event of a malfunction.

NAME Michelle Luplow DATE 9/23/21 SUPERVISOR B.M.

1. Identification of the substance/mixture and of the company/undertaking

Product name	RKAX9277 (2K High bake Clear)	
Product code	RKAX9277	Formula date: 2018-08-14
Perm code	RK-7017	
Intended use	Coating for professional use	
	Axalta Coating Systems Canada Company 408 Fairall Street CA Ajax, ON L1S 1R6	
Telephone	Product information Medical emergency Transportation emergency	(800) 668-6945 (855) 274-5698 (800) 424-9300 (CHEMTREC)

2. Hazards identification

This preparation is hazardous per the following GHS criteria

GHS-Classification

Flammable liquids	Category 3
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitisation	Category 1
Target Organ Systemic Toxicant - Single exposure	Category 3

GHS-Labelling

Hazard symbols

Signal word: Danger

Hazard statements

Flammable liquid and vapour.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.

Precautionary statements

Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/ vapours/ spray.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.

IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor.
Specific treatment (see supplemental first aid instructions on this label).
If skin irritation or rash occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/container in accordance with local regulations.

Other hazards which do not result in classification
Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity:
24.8 %

3. Composition/information on ingredients

Mixture of synthetic resins, pigments, and solvents

Components

CAS-No.	Chemical name	Concentration
64742-95-6	Aromatic hydrocarbon	15 - 26%
95-63-6	1,2,4-trimethyl benzene	10%
71-36-3	N-butyl alcohol	7%
68002-25-5	Melamine resin	4 - 15%
108-67-8	1,3,5-trimethyl benzene	1 - 4%
103-65-1	Benzene, propyl-	1 - 4%
123-86-4	Butyl acetate	1 - 4%
142-82-5	Heptane	1 - 4%
98-82-8	Cumene	0.5%
85204-10-0	Dicarboxylic acid ester with amine	0.1 - 1.0%
1445-45-0	Trimethyl orthoacetate	0.1 - 1.0%

Any concentration shown as a range is due to batch variation.
Non-regulated ingredients 50 - 60%
OSHA Hazardous: Yes

4. First aid measures

Eye contact

Remove contact lenses. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Seek medical advice.

Skin contact
Do NOT use solvents or thinners. Take off all contaminated clothing immediately. Wash skin thoroughly with soap and water or use recognized skin cleanser. If skin irritation persists, call a physician.

Inhalation
Avoid inhalation of vapour or mist. Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

Ingestion
If swallowed, seek medical advice immediately and show this safety data sheet (SDS) or product label. Do NOT induce vomiting. Keep at rest.

Most Important Symptoms/effects, acute and delayed

Inhalation
May cause nose and throat irritation. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ingestion
May result in gastrointestinal distress.

Skin or eye contact
May cause irritation or burning of the eyes. Repeated or prolonged liquid contact may cause skin irritation with discomfort and dermatitis.

Indication of Immediate medical attention and special treatment needed if necessary
No data available on the product. See section 3 and 11 for hazardous ingredients found in the product.

5. Firefighting measures

Suitable extinguishing media
Universal aqueous film-forming foam, Carbon dioxide (CO2), Dry chemical

Extinguishing media which shall not be used for safety reasons
High volume water jet

Hazardous combustion products
CO, CO2, smoke, and oxides of any heavy metals that are reported in “Composition, Information on Ingredients” section.

Fire and Explosion Hazards
Flammable liquid. Vapor/air mixture will burn when an ignition source is present.

Special Protective Equipment and Fire Fighting Procedures
Full protective flameproof clothing should be worn as appropriate. Wear self-contained breathing apparatus for firefighting if necessary. In the event of fire, cool tanks with water spray. Do not allow run-off from fire fighting to enter public sewer systems or public waterways.

6. Accidental release measures

Procedures for cleaning up spills or leaks
Ventilate area. Remove sources of ignition. Prevent skin and eye contact and breathing of vapor. Wear a properly fitted air-purifying respirator with organic vapor cartridges (NIOSH approved TC-23C), eye protection, gloves and protective clothing. Confine, remove with inert absorbent, and dispose of properly.

Environmental precautions
Do not let product enter drains. Notify the respective authorities in accordance with local law in the case of contamination of rivers, lakes or waste water systems.

7. Handling and storage

Precautions for safe handling
Observe label precautions. Keep away from heat, sparks, flame, static discharge and other sources of ignition. VAPORS MAY CAUSE FLASH FIRE. Close container after each use. Ground containers when pouring. Do not transfer contents to bottles or unlabeled containers. Wash thoroughly after handling and before eating or smoking. Do not store above 49 °C (120 °F). If material is a coating: do not sand, flame cut, braze or weld dry coating without a NIOSH approved air purifying respirator with particulate filters or appropriate ventilation, and gloves. Combustible dust clouds may be created where operations produce fine material (dust). Avoid formation of significant deposits of material as they may become airborne and form combustible dust clouds. Build up of fine material should be cleaned using gentle sweeping or vacuuming in accordance with best practices. Cleaning methods (e.g. compressed air) which can generate potentially combustible dust clouds should not be used.

Advice on protection against fire and explosion
Solvent vapours are heavier than air and may spread along floors. Vapors may form explosive mixtures with air and will burn when an ignition source is present. Always keep in containers of same material as the original one. Never use pressure to empty container: container is not a pressure vessel. The accumulation of contaminated rags may result in spontaneous combustion. Good housekeeping standards and regular safe removal of waste materials will minimize the risks of spontaneous combustion and other fire hazards.

Storage

Requirements for storage areas and containers
Observe label precautions. Store in a dry, well ventilated place away from sources of heat, ignition and direct sunlight. No smoking. Prevent unauthorized access. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Advice on common storage
Store separately from oxidizing agents and strongly alkaline and strongly acidic materials.

OSHA/NFPA Storage Classification: IC

8. Exposure controls/personal protection

Engineering controls and work practices
Provide adequate ventilation.This should be achieved by a good general extraction and -if practically feasible- by the use of a local exhaust ventilation.If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

National occupational exposure limits

CAS-No.	Chemical name	Source	Time	Type	Value	Note
64742-95-6	Aromatic hydrocarbon	Dupont	8 & 12 hour	TWA	50 ppm	
95-63-6	1,2,4-trimethyl benzene	ACGIH	8 hr	TWA	25 ppm	
		OSHA	8 hr	TWA	25 ppm	
71-36-3	N-butyl alcohol	ACGIH	8 hr	TWA	20 ppm	
		OSHA	8 hr	TWA	100 ppm	
		Dupont	15 min	TWA	50 ppm	
		Dupont	8 & 12 hour	TWA	25 ppm	
108-67-8	1,3,5-trimethyl benzene	ACGIH	8 hr	TWA	25 ppm	

CAS-No.	Chemical name	Source	Time	Type	Value	Note
123-86-4	Butyl acetate	ACGIH	15 min	STEL	200 ppm	
		ACGIH	8 hr	TWA	150 ppm	
		OSHA	8 hr	TWA	150 ppm	
142-82-5	Heptane	ACGIH	15 min	STEL	500 ppm	
		ACGIH	8 hr	TWA	400 ppm	
		OSHA	8 hr	TWA	500 ppm	
98-82-8	Cumene	ACGIH	8 hr	TWA	50 ppm	
		OSHA	8 hr	TWA	50 ppm	Skin

Glossary

CEIL	Ceiling exposure limit
STEL	Short term exposure limit
TL	Threshold limits
TLV	Threshold Limit Value
TWA	Time weighted average
TWAE	Time-Weighted Average

Protective equipment
Personal protective equipment should be worn to prevent contact with eyes, skin or clothing.

Respiratory protection
Do not breathe vapors or mists. Wear an appropriate, properly fitted NIOSH approved respirator during application and until all vapors and spray mists are exhausted unless air monitoring demonstrates vapor/mist levels are below applicable limits. If respirators are required, use a properly fitted air-purifying respirator with organic vapor cartridges (NIOSH approved TC-23C) and particulate filter (NIOSH TC-84A). In confined spaces, or in situations where continuous spray operations are typical, or if proper air-purifying respirator fit is not possible, wear a positive pressure, supplied-air respirator (NIOSH TC-19C). In all cases, follow respirator manufacturer's directions for respirator use.'

Eye protection
Desirable in all industrial situations. Goggles are preferred to prevent eye irritation. If safety glasses are substituted, include splash guard or side shields.

Skin and body protection
Neoprene gloves and coveralls are recommended.

Hygiene measures
Wash skin thoroughly with soap and water or use recognized skin cleanser. Do NOT use solvents or thinners.

Environmental exposure controls
Do not let product enter drains.
For ecological information, refer to Ecological Information Section 12.

9. Physical and chemical properties

Appearance

Form: liquid **Colour:** clear

Flash point	81 °F
Lower Explosive Limit	0.7 %
Upper Explosive Limit	11.3 %
Evaporation rate	Slower than Ether
Vapor pressure of principal solvent	3.6 hPa
Water solubility	moderate
Vapor density of principal solvent (Air = 1)	4.1
Approx. Boiling Range	117 °C

Approx. Freezing Range	-89 – -51 °C	
Gallon Weight (lbs/gal)	8.26	
Specific Gravity	0.99	
Percent Volatile By Volume	48.58%	
Percent Volatile By Weight	42.44%	
Percent Solids By Volume	51.43%	
Percent Solids By Weight	57.56%	
pH (waterborne systems only)	Not applicable	
Partition coefficient: n-octanol/water	No data available	
Ignition temperature	215 °C	DIN 51794
Decomposition temperature	Not applicable.	
Viscosity (23 °C)	Not applicable.	ISO 2431-1993
VOC* less exempt (lbs/gal)	3.5	
VOC* as packaged (lbs/gal)	3.5	

* VOC less exempt (theoretical) and VOC as packaged (theoretical) are based upon the VOC of the packaged material at the point of manufacture.

10. Stability and reactivity

Stability

Stable

Conditions to avoid

Stable under recommended storage and handling conditions (see section 7).

Materials to avoid

None reasonably foreseeable.

Hazardous decomposition products

The product contains ingredients which, under certain conditions, also may release formaldehyde. If necessary, the precise concentration has to be be determined. When exposed to high temperatures may produce hazardous decomposition products such as carbon monoxide and dioxide, smoke, oxides of nitrogen.

Hazardous Polymerization

Will not occur.

Sensitivity to Static Discharge

Solvent vapors in air may explode if static grounding and bonding is not used during transfer of this product.

Sensitivity to Mechanical Impact

None known.

11. Toxicological information

Information on likely routes of exposure

Inhalation
May cause nose and throat irritation. May cause nervous system depression characterized by the following progressive steps: headache, dizziness, nausea, staggering gait, confusion, unconsciousness. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ingestion
May result in gastrointestinal distress.

Skin or eye contact
May cause irritation or burning of the eyes. Repeated or prolonged liquid contact may cause skin irritation with discomfort and dermatitis.

Delayed and immediate effects and also chronic effects from short and long term exposure:

Acute oral toxicity
not hazardous

Acute dermal toxicity
not hazardous

Acute inhalation toxicity
not hazardous

% of unknown composition: 24.8 %

Skin corrosion/irritation

Aromatic hydrocarbon	Category 3
1,2,4-trimethyl benzene	Category 2
N-butyl alcohol	Category 2
1,3,5-trimethyl benzene	Category 2
Butyl acetate	Category 3
Heptane	Category 2
Trimethyl orthoacetate	Category 2

Serious eye damage/eye irritation

1,2,4-trimethyl benzene	Category 2A
N-butyl alcohol	Category 1
1,3,5-trimethyl benzene	Category 2A
Dicarboxylic acid ester with amine	Category 1

Respiratory sensitisation
Not classified according to GHS criteria

Skin sensitisation

Dicarboxylic acid ester with amine	Category 1
Trimethyl orthoacetate	Category 1

Germ cell mutagenicity
Not classified according to GHS criteria

Carcinogenicity
Not classified according to GHS criteria

Toxicity for reproduction
Not classified according to GHS criteria

Target Organ Systemic Toxicant - Single exposure
No data available.

Target Organ Systemic Toxicant - Repeated exposure
Not classified according to GHS criteria

Aspiration toxicity
Not classified according to GHS criteria

Numerical measures of toxicity (acute toxicity estimation (ATE),etc.)
No information available.

Symptoms related to the physical, chemical and toxicological characteristics
Exposure to component solvents vapours concentration in excess of the stated occupational exposure limit may result in adverse health effect such as mucous membrane and respiratory system irritation and adverse effect on kidney, liver and central nervous system. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Through skin resorbtion, solvents can cause some of the effects described here. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and absorption through the skin. The liquid splashed in the eyes may cause irritation and reversible damage.

Whether the hazardous chemical is listed by NTP, IARC or OSHA

Cumene IARC 2B

12. Ecological information

There are no data available on the product itself. The product should not be allowed to enter drains or watercourses.

13. Disposal considerations

Waste Disposal Method
Do not allow material to contaminate ground water systems. Incinerate or otherwise dispose of waste material in accordance with Federal, State, Provincial, and local requirements. Do not incinerate in closed containers.

14. Transport information

International transport regulations

IMDG (Sea transport)

UN number:	1263
Proper shipping name:	PAINT
Hazard Class:	3
Subsidiary Hazard Class:	Not applicable.
Packing group:	III
Marine Pollutant:	yes [solvent naphtha (petroleum), light arom. (<0,1% benzene)]
EmS:	F-E,S-E

ICAO/IATA (Air transport)

UN number:	1263
Proper shipping name:	PAINT
Hazard Class:	3
Subsidiary Hazard Class:	Not applicable.
Packing group:	III

DOT

UN number:	1263
Proper shipping name:	PAINT
Hazard Class:	3
Subsidiary Hazard Class:	Not applicable.
Packing group:	III
Marine Pollutant:	yes [solvent naphtha (petroleum), light arom. (<0,1% benzene)]

The transport information is for bulk shipments. Exceptions may apply for smaller containers.

Matters needing attention for transportation
Confirm that there is no breakage, corrosion, or leakage from the container before shipping. Be sure to prevent damage to cargo by loading so as to avoid falling, dropping, or collapse. Ship in appropriate containers with denotation of the content in accordance with the relevant statutes and rules.

15. Regulatory information

TSCA Status
In compliance with TSCA Inventory requirements for commercial purposes.

DSL Status
Product is not DSL listed because one or more ingredients are not on the DSL inventory.

Photochemical Reactivity
Photochemically reactive

Regulatory information

		EPCRA					CERCLA	CAA
CAS #	Ingredient	302	TPQ	RQ	311/312	313	RQ(lbs)	HAP
64742-95-6	Aromatic hydrocarbon	N	NR	NR	A,C,F	N	NR	N
95-63-6	1,2,4-trimethyl benzene	N	NR	NR	A,C	Y	NR	N
71-36-3	N-butyl alcohol	N	NR	NR	A,C,F,N,P,R	Y	5,000	N
68002-25-5	Melamine resin	N	NR	NR	A,C,F,N,P,R	N	NR	N
108-67-8	1,3,5-trimethyl benzene	N	NR	NR	NA	N	NA	N
103-65-1	Benzene, propyl-	N	NR	NR	NA	N	NR	N
123-86-4	Butyl acetate	N	NR	NR	A,C,F	N	NR	N
142-82-5	Heptane	N	NR	NR	A,C,F	N	NR	N
98-82-8	Cumene	N	NR	NR	A,C,F	Y	NR	Y
85204-10-0	Dicarboxylic acid ester with amine	N	NR	NR	NA	N	NR	N
1445-45-0	Trimethyl orthoacetate	N	NR	NR	NA	N	NR	N

Key:

EPCRA	Emergency Planning and Community Right-to-know Act (aka Title III, SARA)
302	Extremely hazardous substances
311/312 Categories	F = Fire Hazard R = Reactivity Hazard P = Pressure Related Hazard A = Acute Hazard C = Chronic Hazard
313 Information	Section 313 Supplier Notification - The chemicals listed above with a 'Y' in the 313 column are subject to reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know act of 1986 and of 40 CFR 372.
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act of 1980.
HAP	Listed as a Clean Air Act Hazardous Air Pollutant.
TPQ	Threshold Planning Quantity.
RQ	Reportable Quantity
NA	not available
NR	not regulated

16. Other information

HMIS rating H: 3 F: 3 R: 0

Glossary of Terms:

ACGIH	American Conference of Governmental Industrial Hygienists.
IARC	International Agency for Research on Cancer.
NTP	National Toxicology Program.
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration.
STEL	Short term exposure limit
TWA	Time-weighted average.
PNOR	Particles not otherwise regulated.
PNOC	Particles not otherwise classified.

NOTE: The list (above) of glossary terms may be modified.

Notice from Axalta Coating Systems :
The document reflects information provided to Axalta Coating Systems by its suppliers. Information is accurate to the best of our knowledge and is subject to change as new data is received by Axalta Coating Systems. Persons receiving this information should make their own determination as to its suitability for their purposes prior to use.
The information on this Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

SDS prepared by: Axalta Coating Systems Regulatory Affairs

Report version

Version	Changes
9.1	8, 16

Revision Date: 2018-08-23

(800) 668-6945
axalta.us

PTI 70-18

Oven/A.B. #1 Maitenence Record

Date	Maintenance Performed	Employee
3/18/21	Changed Bladder Tank calibrations	BD
4/15/21	PM replace flame rods, clean blower/fan, check damper	BD
6/10/21	Clean flame rods, clean blower assembly	BD
6/30/21	PM	BD
7/6/21	Vacuume out oven	BH

PTI 86-20

Oven/A.B. #2 Maitenence Record

Date	Maintenance Performed	Employee
2/9/21	Oven Install AB + Stack Install, Test fire, Calibration	M.S
4/15/21	PM Clean flame rods, clean blower assmb,	BD
6/3/21	PM	BD
7/7/21	changed 2 fuses	SM.

Gene+A1:S233ral PTI 70-18 Temperature Records

Time hh:r	Afterburner	Oven	Time hh:	Afterburner	Oven	Time hh:	Afterburner	Oven	Time hh:	Afterburner	Oven
8/20/2020	1504.42	818.31	20:00:00:0	454.95	628.29	8/21/2020	371.3	483.71	04:00:00:0	294.18	374.44
16:00:00:0	1503.69	817.82	20:01:00:0	454.46	627.56	00:01:00:0	370.81	482.99	04:01:00:0	293.93	374.2
16:01:00:0	1502.73	817.34	20:02:00:0	453.49	627.08	00:02:00:0	370.09	482.51	04:02:00:0	293.93	373.96
16:02:00:0	1504.18	816.86	20:03:00:0	452.77	626.35	00:03:00:0	370.09	481.78	04:03:00:0	293.45	373.47
16:03:00:0	1503.21	816.37	20:04:00:0	452.53	625.63	00:04:00:0	369.36	481.3	04:04:00:0	292.97	372.99
16:04:00:0	1503.93	815.89	20:05:00:0	452.29	624.9	00:05:00:0	369.36	480.81	04:05:00:0	292.97	372.75
16:05:00:0	1504.18	815.65	20:06:00:0	452.04	624.42	00:06:00:0	368.88	480.33	04:06:00:0	292.73	372.26
16:06:00:0	1503.21	814.92	20:07:00:0	451.32	623.93	00:07:00:0	368.64	479.85	04:07:00:0	292	372.02
16:07:00:0	1504.66	814.2	20:08:00:0	450.84	622.97	00:08:00:0	367.91	479.36	04:08:00:0	291.76	371.54
16:08:00:0	1502.97	813.71	20:09:00:0	450.84	622.48	00:09:00:0	367.67	478.64	04:09:00:0	291.27	371.3
16:09:00:0	1503.93	813.23	20:10:00:0	450.59	621.76	00:10:00:0	367.19	478.15	04:10:00:0	291.03	371.05
16:10:00:0	1503.21	812.51	20:11:00:0	450.11	621.27	00:11:00:0	367.19	477.67	04:11:00:0	290.79	370.57
16:11:00:0	1503.69	811.78	20:12:00:0	449.87	620.55	00:12:00:0	366.95	477.19	04:12:00:0	290.55	370.33
16:12:00:0	1504.18	811.3	20:13:00:0	449.38	619.82	00:13:00:0	366.22	476.7	04:13:00:0	290.55	370.09
16:13:00:0	1503.21	811.05	20:14:00:0	448.66	619.1	00:14:00:0	366.46	476.22	04:14:00:0	290.31	369.6
16:14:00:0	1504.42	810.57	20:15:00:0	448.42	618.37	00:15:00:0	365.98	475.74	04:15:00:0	290.07	369.12
16:15:00:0	1503.45	809.6	20:16:00:0	447.69	617.65	00:16:00:0	365.74	475.25	04:16:00:0	289.34	368.88
16:16:00:0	1503.93	808.88	20:17:00:0	447.21	616.68	00:17:00:0	365.49	474.77	04:17:00:0	288.86	368.4
16:17:00:0	1503.69	808.15	20:18:00:0	446.48	616.2	00:18:00:0	365.25	474.29	04:18:00:0	289.1	367.91
16:18:00:0	1503.45	807.67	20:19:00:0	445.52	615.47	00:19:00:0	364.53	473.8	04:19:00:0	288.86	367.67
16:19:00:0	1503.69	806.95	20:20:00:0	445.27	614.75	00:20:00:0	364.53	473.32	04:20:00:0	288.37	367.19
16:20:00:0	1502.97	806.22	20:21:00:0	444.79	614.26	00:21:00:0	364.29	472.59	04:21:00:0	287.89	366.7
16:21:00:0	1504.42	805.98	20:22:00:0	444.79	613.54	00:22:00:0	364.04	472.11	04:22:00:0	287.89	366.22
16:22:00:0	1503.45	805.74	20:23:00:0	444.31	613.05	00:23:00:0	363.32	471.38	04:23:00:0	287.41	365.98
16:23:00:0	1503.93	805.01	20:24:00:0	444.07	612.33	00:24:00:0	362.35	470.9	04:24:00:0	286.92	365.49
16:24:00:0	1504.42	804.53	20:25:00:0	443.34	611.6	00:25:00:0	362.35	470.18	04:25:00:0	286.68	365.25
16:25:00:0	1502.97	803.8	20:26:00:0	442.62	610.88	00:26:00:0	362.35	469.69	04:26:00:0	285.96	364.77
16:26:00:0	1503.93	803.08	20:27:00:0	442.37	610.4	00:27:00:0	362.11	469.21	04:27:00:0	285.96	364.53
16:27:00:0	1503.93	802.59	20:28:00:0	442.62	609.67	00:28:00:0	362.11	468.73	04:28:00:0	285.71	364.04
16:28:00:0	1503.45	802.84	20:29:00:0	442.13	609.19	00:29:00:0	361.63	468.24	04:29:00:0	285.71	363.8
16:29:00:0	1503.93	802.59	20:30:00:0	441.41	608.46	00:30:00:0	361.38	467.76	04:30:00:0	285.47	363.32
16:30:00:0	1502.97	802.59	20:31:00:0	440.92	607.98	00:31:00:0	360.66	467.27	04:31:00:0	285.47	363.08
16:31:00:0	1500.07	802.35	20:32:00:0	440.92	607.25	00:32:00:0	360.18	466.79	04:32:00:0	284.75	362.59
16:32:00:0	1326.24	801.87	20:33:00:0	440.92	606.77	00:33:00:0	359.93	466.07	04:33:00:0	284.51	362.35
16:33:00:0	1149.28	801.14	20:34:00:0	440.68	606.04	00:34:00:0	359.69	465.82	04:34:00:0	284.51	361.87
16:34:00:0	1052.09	800.42	20:35:00:0	439.96	605.32	00:35:00:0	359.21	465.1	04:35:00:0	284.02	361.63
16:35:00:0	989.47	799.69	20:36:00:0	439.96	604.59	00:36:00:0	358.97	464.62	04:36:00:0	283.78	361.14
16:36:00:0	946.68	798.73	20:37:00:0	439.71	603.87	00:37:00:0	358.48	464.13	04:37:00:0	283.3	360.9
16:37:00:0	913.32	797.76	20:38:00:0	439.47	603.14	00:38:00:0	358.24	463.65	04:38:00:0	283.05	360.42
16:38:00:0	886	796.79	20:39:00:0	439.23	602.42	00:39:00:0	358	463.16	04:39:00:0	282.81	360.18
16:39:00:0	863.52	795.82	20:40:00:0	438.75	601.69	00:40:00:0	357.76	462.68	04:40:00:0	282.81	359.93
16:40:00:0	843.93	794.62	20:41:00:0	437.78	601.21	00:41:00:0	357.27	461.96	04:41:00:0	282.57	359.69
16:41:00:0	827.25	793.65	20:42:00:0	437.05	600.48	00:42:00:0	357.27	461.47	04:42:00:0	282.33	359.21
16:42:00:0	812.51	792.68	20:43:00:0	437.54	599.76	00:43:00:0	357.03	460.99	04:43:00:0	281.85	358.97
16:43:00:0	799.45	791.71	20:44:00:0	437.3	599.27	00:44:00:0	356.79	460.51	04:44:00:0	281.6	358.73
16:44:00:0	787.36	790.75	20:45:00:0	437.05	598.79	00:45:00:0	355.82	460.02	04:45:00:0	281.12	358.24
16:45:00:0	776.24	789.78	20:46:00:0	436.57	598.07	00:46:00:0	356.07	459.3	04:46:00:0	281.12	358
16:46:00:0	766.09	789.05	20:47:00:0	435.6	597.34	00:47:00:0	355.58	458.57	04:47:00:0	281.12	357.52
16:47:00:0	756.9	788.33	20:48:00:0	435.6	596.86	00:48:00:0	354.62	458.09	04:48:00:0	280.64	357.27
16:48:00:0	748.2	787.36	20:49:00:0	435.12	596.37	00:49:00:0	354.37	457.36	04:49:00:0	279.91	357.03
16:49:00:0	740.46	786.64	20:50:00:0	434.64	595.65	00:50:00:0	354.13	456.88	04:50:00:0	280.15	356.55
16:50:00:0	732.97	785.67	20:51:00:0	433.91	595.16	00:51:00:0	353.65	456.4	04:51:00:0	280.15	356.31
16:51:00:0	726.2	784.46	20:52:00:0	433.91	594.2	00:52:00:0	353.41	455.91	04:52:00:0	279.67	356.07
16:52:00:0	719.67	783.49	20:53:00:0	433.19	593.47	00:53:00:0	353.41	455.43	04:53:00:0	279.67	355.58
16:53:00:0	713.38	782.53	20:54:00:0	432.46	592.75	00:54:00:0	353.41	454.95	04:54:00:0	279.43	355.34
16:54:00:0	707.34	781.56	20:55:00:0	431.98	592.02	00:55:00:0	352.92	454.46	04:55:00:0	279.19	355.1
16:55:00:0	701.78	780.59	20:56:00:0	431.98	591.54	00:56:00:0	352.68	453.98	04:56:00:0	279.19	354.62
16:56:00:0	696.46	779.63	20:57:00:0	432.22	590.81	00:57:00:0	352.44	453.49	04:57:00:0	278.95	354.37
16:57:00:0	691.38	778.66	20:58:00:0	431.98	590.33	00:58:00:0	351.71	453.01	04:58:00:0	278.7	354.13
16:58:00:0	686.79	777.45	20:59:00:0	431.01	589.6	00:59:00:0	350.75	452.53	04:59:00:0	279.19	353.65
16:59:00:0	682.2	776.48	21:00:00:0	431.01	589.12	01:00:00:0	350.51	452.04	05:00:00:0	280.15	353.16
17:00:00:0	677.85	775.52	21:01:00:0	431.25	588.4	01:01:00:0	350.26	451.56	05:01:00:0	262.02	348.57
17:01:00:0	673.49	774.55	21:02:00:0	431.01	587.91	01:02:00:0	350.26	451.08	05:02:00:0	227.93	335.52
17:02:00:0	669.38	773.58	21:03:00:0	430.29	587.43	01:03:00:0	349.54	450.59	05:03:00:0	200.86	323.91
17:03:00:0	665.76	772.37	21:04:00:0	429.56	586.7	01:04:00:0	349.54	450.11	05:04:00:0	172.81	305.3
17:04:00:0	661.89	771.41	21:05:00:0	429.8	586.22	01:05:00:0	349.3	449.63	05:05:00:0	150.09	282.57
17:05:00:0	658.26	770.68	21:06:00:0	429.32	585.74	01:06:00:0	349.05	449.14	05:06:00:0	136.31	261.05
17:06:00:0	654.64	769.47	21:07:00:0	428.59	585.01	01:07:00:0	348.81	448.66	05:07:00:0	129.05	243.65
17:07:00:0	651.25	768.51	21:08:00:0	428.35	584.29	01:08:00:0	348.57	448.18	05:08:00:0	124.46	229.63
17:08:00:0	648.11	767.54	21:09:00:0	427.38	583.56	01:09:00:0	348.09	447.69	05:09:00:0	121.32	218.02
17:09:00:0	644.97	766.81	21:10:00:0	427.14	582.84	01:10:00:0	347.6	447.45	05:10:00:0	119.38	207.87
17:10:00:0	642.07	765.85	21:11:00:0	426.66	582.11	01:11:00:0	347.6	446.97	05:11:00:0	116.97	198.68
17:11:00:0	639.16	764.88	21:12:00:0	426.66	581.63	01:12:00:0	347.36	446.24	05:12:00:0	114.55	189.25
17:12:00:0	636.26	763.91	21:13:00:0	426.9	580.9	01:13:00:0	346.88	445.76	05:13:00:0	112.86	180.31
17:13:00:0	633.36	762.95	21:14:00:0	426.18	580.42	01:14:00:0	346.15	445.03	05:14:00:0	111.65	173.54
17:14:00:0	630.95	761.98	21:15:00:0	426.42	579.69	01:15:00:0	345.67	444.55	05:15:00:0	110.92	168.46
17:15:00:0	628.29	761.01	21:16:00:0	426.42	579.21	01:16:00:0	344.95	444.07	05:16:00:0	109.71	163.63
17:16:00:0	626.11	760.04	21:17:00:0	425.93	578.48	01:17:00:0	344.46	443.58	05:17:00:0	108.26	158.07
17:17:00:0	623.45	758.84	21:18:00:0	425.21	578	01:18:00:0	344.22	443.1	05:18:00:0	106.09	153.71
17:18:00:0	620.55	757.87	21:19:00:0	424.97	577.52	01:19:00:0	343.74	442.62	05:19:00:0	104.64	149.85
17:19:00:0	618.13	756.9	21:20:00:0	424.73	576.79	01:20:00:0	343.49	442.13	05:20:00:0	103.43	146.95
17:20:00:0	616.2	755.93	21:21:00:0	424.48	576.31	01:21:00:0	343.49	441.89	05:21:00:0	102.22	143.8
17:21:00:0	613.78	754.97	21:22:00:0	424	575.58	01:22:00:0	343.25	441.16	05:22:00:0	101.25	140.42
17:22:00:0	611.6	754	21:23:00:0	423.52	575.1	01:23:00:0	343.01	440.92	05:23:00:0	100.77	137.27
17:23:00:0	609.19	753.03	21:24:00:0	423.27	574.37	01:24:00:0	342.29	440.44	05:24:00:0	100.04	134.37

17:24:00:0	607.25	752.07	21:25:00:0	422.79	573.65	01:25:00:0	342.29	439.96	05:25:00:0	99.32	131.47
17:25:00:0	605.08	751.1	21:26:00:0	422.31	572.92	01:26:00:0	342.04	439.47	05:26:00:0	98.59	129.54
17:26:00:0	602.9	750.13	21:27:00:0	422.31	572.2	01:27:00:0	342.04	438.99	05:27:00:0	98.35	127.36
17:27:00:0	600.73	749.16	21:28:00:0	421.82	571.47	01:28:00:0	341.8	438.51	05:28:00:0	98.11	125.19
17:28:00:0	598.55	748.2	21:29:00:0	421.1	570.99	01:29:00:0	340.84	438.26	05:29:00:0	97.38	123.25
17:29:00:0	596.62	747.23	21:30:00:0	421.1	570.51	01:30:00:0	340.35	437.78	05:30:00:0	96.9	121.56
17:30:00:0	594.44	746.26	21:31:00:0	420.37	569.78	01:31:00:0	340.11	437.3	05:31:00:0	96.42	119.87
17:31:00:0	592.51	745.3	21:32:00:0	419.89	569.3	01:32:00:0	340.11	436.81	05:32:00:0	96.18	118.66
17:32:00:0	590.57	744.33	21:33:00:0	419.65	568.81	01:33:00:0	340.11	436.33	05:33:00:0	95.45	117.69
17:33:00:0	588.64	743.36	21:34:00:0	419.65	568.09	01:34:00:0	339.87	436.09	05:34:00:0	95.21	116.24
17:34:00:0	586.7	742.4	21:35:00:0	419.16	567.6	01:35:00:0	338.9	435.36	05:35:00:0	94.97	115.03
17:35:00:0	584.77	741.19	21:36:00:0	418.68	566.88	01:36:00:0	338.18	434.88	05:36:00:0	94.48	113.82
17:36:00:0	582.84	740.46	21:37:00:0	418.68	566.4	01:37:00:0	337.69	434.15	05:37:00:0	94	112.13
17:37:00:0	580.9	739.49	21:38:00:0	418.44	565.91	01:38:00:0	337.69	433.67	05:38:00:0	95.21	110.2
17:38:00:0	579.21	738.53	21:39:00:0	417.96	565.19	01:39:00:0	337.21	433.19	05:39:00:0	382.18	108.75
17:39:00:0	577.27	737.56	21:40:00:0	417.47	564.46	01:40:00:0	336.97	432.7	05:40:00:0	1125.82	108.99
17:40:00:0	575.34	736.84	21:41:00:0	417.47	563.49	01:41:00:0	336.48	432.22	05:41:00:0	1404.81	109.71
17:41:00:0	573.41	735.87	21:42:00:0	416.75	562.77	01:42:00:0	336.48	431.74	05:42:00:0	1320.92	114.79
17:42:00:0	571.47	734.9	21:43:00:0	416.02	562.53	01:43:00:0	336.24	431.25	05:43:00:0	1355.01	126.4
17:43:00:0	570.02	733.93	21:44:00:0	416.26	561.8	01:44:00:0	335.76	430.77	05:44:00:0	1417.63	139.69
17:44:00:0	568.57	732.97	21:45:00:0	415.78	561.32	01:45:00:0	335.27	430.29	05:45:00:0	1455.82	152.75
17:45:00:0	566.88	732.24	21:46:00:0	416.02	560.84	01:46:00:0	335.27	430.04	05:46:00:0	1484.84	165.32
17:46:00:0	565.19	731.27	21:47:00:0	415.78	560.11	01:47:00:0	335.03	429.56	05:47:00:0	1505.63	177.41
17:47:00:0	563.49	730.31	21:48:00:0	414.81	559.63	01:48:00:0	334.55	429.08	05:48:00:0	1520.37	188.53
17:48:00:0	561.8	729.58	21:49:00:0	414.57	558.9	01:49:00:0	334.07	428.59	05:49:00:0	1531.25	198.92
17:49:00:0	560.11	728.62	21:50:00:0	414.09	558.42	01:50:00:0	333.58	428.35	05:50:00:0	1525.93	209.08
17:50:00:0	558.42	727.89	21:51:00:0	413.6	557.93	01:51:00:0	333.1	427.87	05:51:00:0	1512.88	218.99
17:51:00:0	556.73	726.92	21:52:00:0	413.6	557.45	01:52:00:0	332.86	427.38	05:52:00:0	1507.8	228.42
17:52:00:0	555.76	725.96	21:53:00:0	413.6	556.73	01:53:00:0	332.86	426.9	05:53:00:0	1504.66	237.6
17:53:00:0	554.31	725.23	21:54:00:0	413.36	556	01:54:00:0	332.86	426.42	05:54:00:0	1505.39	246.55
17:54:00:0	552.86	724.26	21:55:00:0	412.15	555.27	01:55:00:0	332.62	425.93	05:55:00:0	1508.29	255.25
17:55:00:0	551.41	723.54	21:56:00:0	411.91	554.79	01:56:00:0	332.62	425.45	05:56:00:0	1503.93	263.71
17:56:00:0	549.96	722.57	21:57:00:0	411.67	553.82	01:57:00:0	332.13	425.21	05:57:00:0	1505.14	271.69
17:57:00:0	548.75	721.85	21:58:00:0	410.95	553.34	01:58:00:0	331.89	424.73	05:58:00:0	1508.29	279.19
17:58:00:0	547.3	720.88	21:59:00:0	410.46	552.86	01:59:00:0	331.41	424.48	05:59:00:0	1503.21	286.92
17:59:00:0	545.6	720.15	22:00:00:0	410.22	552.37	02:00:00:0	331.16	424	06:00:00:0	1506.35	294.66
18:00:00:0	544.4	719.19	22:01:00:0	410.22	551.89	02:01:00:0	330.92	423.27	06:01:00:0	1506.84	302.15
18:01:00:0	542.95	718.46	22:02:00:0	409.25	551.41	02:02:00:0	330.92	423.03	06:02:00:0	1503.93	309.16
18:02:00:0	541.49	717.49	22:03:00:0	409.49	550.68	02:03:00:0	330.68	422.31	06:03:00:0	1508.04	316.18
18:03:00:0	540.53	716.77	22:04:00:0	409.01	549.96	02:04:00:0	329.96	421.82	06:04:00:0	1503.21	322.95
18:04:00:0	538.84	715.8	22:05:00:0	408.77	549.47	02:05:00:0	329.23	421.34	06:05:00:0	1503.93	329.96
18:05:00:0	537.87	715.08	22:06:00:0	408.77	548.99	02:06:00:0	328.75	420.86	06:06:00:0	1508.29	336.48
18:06:00:0	536.42	714.35	22:07:00:0	408.53	548.26	02:07:00:0	328.51	420.37	06:07:00:0	1505.63	342.53
18:07:00:0	535.45	713.38	22:08:00:0	407.8	547.54	02:08:00:0	328.02	419.89	06:08:00:0	1504.18	348.81
18:08:00:0	534	712.66	22:09:00:0	407.56	546.57	02:09:00:0	327.54	419.41	06:09:00:0	1504.18	355.1
18:09:00:0	532.79	711.69	22:10:00:0	406.35	546.09	02:10:00:0	327.3	418.92	06:10:00:0	1507.32	361.14
18:10:00:0	531.34	710.97	22:11:00:0	406.35	545.36	02:11:00:0	326.81	418.68	06:11:00:0	1505.14	367.19
18:11:00:0	530.37	710	22:12:00:0	406.11	544.88	02:12:00:0	326.57	418.2	06:12:00:0	1505.39	373.47
18:12:00:0	529.65	709.27	22:13:00:0	406.35	544.4	02:13:00:0	326.33	417.71	06:13:00:0	1503.69	379.52
18:13:00:0	528.44	708.31	22:14:00:0	405.87	543.67	02:14:00:0	325.85	417.23	06:14:00:0	1504.9	385.56
18:14:00:0	527.23	707.58	22:15:00:0	405.38	543.19	02:15:00:0	325.6	416.75	06:15:00:0	1506.11	391.36
18:15:00:0	526.02	706.86	22:16:00:0	405.14	542.46	02:16:00:0	325.12	416.51	06:16:00:0	1503.45	397.16
18:16:00:0	525.05	705.89	22:17:00:0	404.9	541.98	02:17:00:0	324.64	416.02	06:17:00:0	1507.8	402.73
18:17:00:0	523.85	705.16	22:18:00:0	404.66	541.49	02:18:00:0	324.64	415.54	06:18:00:0	1504.9	408.53
18:18:00:0	523.36	704.44	22:19:00:0	404.18	541.01	02:19:00:0	324.64	415.3	06:19:00:0	1504.9	414.33
18:19:00:0	522.15	703.47	22:20:00:0	403.93	540.53	02:20:00:0	324.64	414.81	06:20:00:0	1504.18	420.13
18:20:00:0	520.95	702.51	22:21:00:0	403.45	539.8	02:21:00:0	324.15	414.33	06:21:00:0	1505.39	425.93
18:21:00:0	519.49	701.78	22:22:00:0	403.21	539.08	02:22:00:0	323.91	414.09	06:22:00:0	1506.11	431.74
18:22:00:0	519.01	701.05	22:23:00:0	402.73	538.35	02:23:00:0	323.43	413.6	06:23:00:0	1503.93	437.54
18:23:00:0	517.8	700.09	22:24:00:0	402	537.63	02:24:00:0	322.95	413.12	06:24:00:0	1506.11	443.34
18:24:00:0	516.35	699.36	22:25:00:0	401.52	537.14	02:25:00:0	322.7	412.64	06:25:00:0	1504.9	449.14
18:25:00:0	515.14	698.4	22:26:00:0	401.52	536.66	02:26:00:0	322.7	412.4	06:26:00:0	1506.59	454.46
18:26:00:0	513.93	697.43	22:27:00:0	401.27	535.93	02:27:00:0	322.7	411.91	06:27:00:0	1506.35	460.26
18:27:00:0	513.21	696.7	22:28:00:0	401.03	535.45	02:28:00:0	322.22	411.43	06:28:00:0	1504.42	465.82
18:28:00:0	512.24	695.74	22:29:00:0	401.27	534.97	02:29:00:0	321.74	410.95	06:29:00:0	1504.9	471.14
18:29:00:0	511.52	695.01	22:30:00:0	401.03	534.24	02:30:00:0	321.49	410.46	06:30:00:0	1504.18	476.95
18:30:00:0	510.31	694.29	22:31:00:0	400.55	533.76	02:31:00:0	320.77	409.98	06:31:00:0	1504.18	482.51
18:31:00:0	509.58	693.32	22:32:00:0	400.07	533.27	02:32:00:0	320.29	409.25	06:32:00:0	1507.8	487.82
18:32:00:0	508.86	692.59	22:33:00:0	399.34	532.55	02:33:00:0	319.8	409.01	06:33:00:0	1507.32	493.38
18:33:00:0	508.13	691.87	22:34:00:0	399.1	532.07	02:34:00:0	319.08	408.53	06:34:00:0	1504.18	498.95
18:34:00:0	507.16	691.14	22:35:00:0	398.86	531.58	02:35:00:0	318.84	408.04	06:35:00:0	1503.93	504.51
18:35:00:0	506.2	690.42	22:36:00:0	398.37	530.86	02:36:00:0	318.84	407.56	06:36:00:0	1505.39	510.07
18:36:00:0	505.23	689.45	22:37:00:0	398.13	530.37	02:37:00:0	318.59	407.32	06:37:00:0	1507.56	515.63
18:37:00:0	504.26	688.73	22:38:00:0	398.13	529.65	02:38:00:0	318.84	406.84	06:38:00:0	1505.14	521.19
18:38:00:0	503.54	688	22:39:00:0	397.89	529.16	02:39:00:0	318.59	406.35	06:39:00:0	1507.08	526.99
18:39:00:0	502.81	687.27	22:40:00:0	397.16	528.2	02:40:00:0	318.11	406.11	06:40:00:0	1503.93	532.79
18:40:00:0	502.09	686.31	22:41:00:0	396.92	527.47	02:41:00:0	318.11	405.63	06:41:00:0	1502.97	538.59
18:41:00:0	501.36	685.58	22:42:00:0	396.44	526.99	02:42:00:0	317.63	405.14	06:42:00:0	1507.08	544.4
18:42:00:0	500.64	684.86	22:43:00:0	395.71	526.51	02:43:00:0	317.14	404.9	06:43:00:0	1506.11	550.44
18:43:00:0	499.67	684.13	22:44:00:0	395.47	526.02	02:44:00:0	316.66	404.42	06:44:00:0	1505.87	556.48
18:44:00:0	498.95	683.41	22:45:00:0	395.47	525.3	02:45:00:0	316.42	403.93	06:45:00:0	1504.9	562.29
18:45:00:0	498.22	682.68	22:46:00:0	395.23	524.81	02:46:00:0	315.69	403.69	06:46:00:0	1503.93	568.57
18:46:00:0	497.74	681.96	22:47:00:0	394.75	524.33	02:47:00:0	315.21	403.21	06:47:00:0	1509.74	574.62
18:47:00:0	497.01	680.99	22:48:00:0	394.51	523.6	02:48:00:0	314.97	402.73	06:48:00:0	1505.39	580.66
18:48:00:0	496.53	680.51	22:49:00:0	394.26	523.12	02:49:00:0	315.45	402.48	06:49:00:0	1508.04	587.19
18:49:00:0	495.8	679.54	22:50:00:0	393.78	522.64	02:50:00:0	315.21	402	06:50:00:0	1506.35	593.71
18:50:00:0	495.32	678.81	22:51:00:0	393.06	521.91	02:51:00:0	314.97	401.76	06:51:00:0	1507.56	600.48

18:51:00:0	494.35	678.09	22:52:00:0	392.81	521.43	02:52:00:0	314.48	401.27	06:52:00:0	1505.14	607.49
18:52:00:0	493.63	677.36	22:53:00:0	392.81	520.95	02:53:00:0	314	400.79	06:53:00:0	1506.35	614.75
18:53:00:0	492.66	676.64	22:54:00:0	392.57	520.22	02:54:00:0	313.52	400.55	06:54:00:0	1507.32	622
18:54:00:0	492.18	675.91	22:55:00:0	392.33	519.74	02:55:00:0	313.03	400.07	06:55:00:0	1503.93	629.49
18:55:00:0	492.18	674.95	22:56:00:0	392.33	519.25	02:56:00:0	313.03	399.58	06:56:00:0	1509.49	637.23
18:56:00:0	491.45	674.22	22:57:00:0	392.09	518.77	02:57:00:0	312.79	399.34	06:57:00:0	1503.21	645.69
18:57:00:0	490.73	673.49	22:58:00:0	391.6	518.04	02:58:00:0	312.31	398.62	06:58:00:0	1507.08	654.15
18:58:00:0	489.27	672.77	22:59:00:0	391.12	517.56	02:59:00:0	312.31	398.13	06:59:00:0	1510.22	663.1
18:59:00:0	488.31	672.04	23:00:00:0	390.4	516.84	03:00:00:0	312.07	397.65	07:00:00:0	1507.32	672.77
19:00:00:0	487.82	671.32	23:01:00:0	390.15	516.11	03:01:00:0	311.82	397.16	07:01:00:0	1505.39	682.92
19:01:00:0	487.58	670.59	23:02:00:0	389.91	515.38	03:02:00:0	311.34	396.68	07:02:00:0	1509.01	693.56
19:02:00:0	486.86	669.87	23:03:00:0	389.43	514.9	03:03:00:0	311.1	396.2	07:03:00:0	1508.77	704.92
19:03:00:0	486.37	669.14	23:04:00:0	388.7	514.42	03:04:00:0	310.62	395.96	07:04:00:0	1509.01	717.25
19:04:00:0	485.41	668.42	23:05:00:0	388.46	513.69	03:05:00:0	310.37	395.47	07:05:00:0	1509.01	730.79
19:05:00:0	484.92	667.69	23:06:00:0	388.22	513.21	03:06:00:0	310.13	395.23	07:06:00:0	1510.22	746.51
19:06:00:0	483.96	666.97	23:07:00:0	387.98	512.48	03:07:00:0	309.89	394.75	07:07:00:0	1520.13	765.12
19:07:00:0	483.23	666.24	23:08:00:0	387.49	512	03:08:00:0	309.41	394.51	07:08:00:0	1507.8	789.54
19:08:00:0	482.75	665.52	23:09:00:0	387.25	511.52	03:09:00:0	308.92	394.02	07:09:00:0	1483.63	821.45
19:09:00:0	482.51	664.79	23:10:00:0	387.01	511.03	03:10:00:0	308.68	393.54	07:10:00:0	1298.68	808.64
19:10:00:0	482.02	664.07	23:11:00:0	386.29	510.55	03:11:00:0	308.68	393.3	07:11:00:0	1551.8	794.13
19:11:00:0	481.54	663.34	23:12:00:0	386.04	510.07	03:12:00:0	307.96	392.81	07:12:00:0	1546.48	778.9
19:12:00:0	480.33	662.62	23:13:00:0	385.8	509.58	03:13:00:0	307.71	392.57	07:13:00:0	1514.57	781.56
19:13:00:0	479.6	661.65	23:14:00:0	385.56	508.86	03:14:00:0	307.71	392.09	07:14:00:0	1506.35	791.23
19:14:00:0	479.36	660.92	23:15:00:0	385.32	508.37	03:15:00:0	307.47	391.85	07:15:00:0	1511.43	803.56
19:15:00:0	478.64	659.96	23:16:00:0	385.32	507.89	03:16:00:0	307.23	391.36	07:16:00:0	1534.64	805.98
19:16:00:0	477.91	659.23	23:17:00:0	385.08	507.41	03:17:00:0	306.99	390.88	07:17:00:0	1467.43	834.51
19:17:00:0	477.19	658.51	23:18:00:0	384.84	506.68	03:18:00:0	306.51	390.64	07:18:00:0	1163.3	812.02
19:18:00:0	476.7	657.78	23:19:00:0	384.35	506.2	03:19:00:0	306.26	390.15	07:19:00:0	1525.93	796.31
19:19:00:0	476.22	657.05	23:20:00:0	383.63	505.23	03:20:00:0	306.26	389.91	07:20:00:0	1524	795.82
19:20:00:0	475.74	656.09	23:21:00:0	383.38	504.51	03:21:00:0	306.02	389.43	07:21:00:0	1506.35	803.32
19:21:00:0	475.01	655.36	23:22:00:0	382.9	504.02	03:22:00:0	305.54	389.19	07:22:00:0	1516.02	804.77
19:22:00:0	473.8	654.88	23:23:00:0	382.42	503.54	03:23:00:0	305.05	388.7	07:23:00:0	1512.15	803.8
19:23:00:0	473.32	654.15	23:24:00:0	382.18	503.06	03:24:00:0	304.81	388.46			
19:24:00:0	472.35	653.43	23:25:00:0	382.18	502.57	03:25:00:0	304.33	387.98			
19:25:00:0	472.11	652.7	23:26:00:0	382.18	502.09	03:26:00:0	304.09	387.74			
19:26:00:0	471.63	651.98	23:27:00:0	381.69	501.36	03:27:00:0	303.85	387.25			
19:27:00:0	471.63	651.25	23:28:00:0	381.21	500.88	03:28:00:0	303.6	386.77			
19:28:00:0	471.14	650.77	23:29:00:0	380.73	500.4	03:29:00:0	303.36	386.53			
19:29:00:0	470.42	650.04	23:30:00:0	380.48	499.91	03:30:00:0	303.36	386.04			
19:30:00:0	469.93	649.32	23:31:00:0	380.48	499.43	03:31:00:0	303.36	385.56			
19:31:00:0	469.69	648.59	23:32:00:0	380.48	498.95	03:32:00:0	302.64	385.32			
19:32:00:0	469.21	647.87	23:33:00:0	380.24	498.22	03:33:00:0	302.15	384.84			
19:33:00:0	468	647.14	23:34:00:0	379.52	497.74	03:34:00:0	301.91	384.35			
19:34:00:0	467.76	646.42	23:35:00:0	379.52	497.25	03:35:00:0	301.43	383.87			
19:35:00:0	467.27	645.69	23:36:00:0	379.27	496.77	03:36:00:0	301.19	383.38			
19:36:00:0	466.79	644.97	23:37:00:0	378.79	496.29	03:37:00:0	300.46	382.9			
19:37:00:0	466.55	644.48	23:38:00:0	378.31	495.8	03:38:00:0	299.98	382.66			
19:38:00:0	465.82	643.76	23:39:00:0	378.31	495.08	03:39:00:0	299.98	382.18			
19:39:00:0	464.37	643.03	23:40:00:0	377.58	494.35	03:40:00:0	299.49	381.69			
19:40:00:0	464.37	642.31	23:41:00:0	377.1	493.63	03:41:00:0	299.74	381.45			
19:41:00:0	464.37	641.82	23:42:00:0	376.86	493.14	03:42:00:0	299.49	380.97			
19:42:00:0	464.13	641.1	23:43:00:0	376.37	492.42	03:43:00:0	299.25	380.48			
19:43:00:0	463.65	640.37	23:44:00:0	376.13	491.93	03:44:00:0	299.25	380.24			
19:44:00:0	462.68	639.65	23:45:00:0	375.89	491.45	03:45:00:0	298.77	379.76			
19:45:00:0	462.2	638.92	23:46:00:0	375.65	490.97	03:46:00:0	297.8	379.52			
19:46:00:0	461.23	638.2	23:47:00:0	374.92	490.48	03:47:00:0	297.32	379.03			
19:47:00:0	460.51	637.23	23:48:00:0	374.68	490	03:48:00:0	297.08	378.79			
19:48:00:0	460.26	636.51	23:49:00:0	374.44	489.52	03:49:00:0	297.08	378.55			
19:49:00:0	459.78	635.78	23:50:00:0	374.2	489.03	03:50:00:0	296.59	378.07			
19:50:00:0	459.54	635.05	23:51:00:0	373.96	488.31	03:51:00:0	296.35	377.58			
19:51:00:0	458.81	634.33	23:52:00:0	373.96	488.07	03:52:00:0	295.87	377.34			
19:52:00:0	458.81	633.6	23:53:00:0	373.71	487.34	03:53:00:0	295.63	377.1			
19:53:00:0	458.33	633.12	23:54:00:0	373.23	486.86	03:54:00:0	295.63	376.62			
19:54:00:0	457.6	632.4	23:55:00:0	372.99	486.37	03:55:00:0	295.63	376.37			
19:55:00:0	457.36	631.67	23:56:00:0	372.99	485.89	03:56:00:0	295.38	375.89			
19:56:00:0	456.88	630.95	23:57:00:0	372.75	485.41	03:57:00:0	295.14	375.65			
19:57:00:0	456.64	630.22	23:58:00:0	372.26	484.92	03:58:00:0	294.9	375.16			
19:58:00:0	456.4	629.49	23:59:00:0	371.54	484.44	03:59:00:0	294.42	374.92			
19:59:00:0	455.91	629.01									

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
Moarch	1250	5256800
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200.1	400	600.1	800.1
Deviation	0	0.1	0	0.1	0.1

N/A ■

Calibration Data (if Applicable)

	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

Tech Spencer Moulton Date 2-9-2021

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
Honeywell	2500	18W18C4000005565408
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200.1	400.2	600	800.2
Deviation	0	0.1	0.2	0	0.2

N/A ■

Calibration Data (if Applicable)

	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

Tech Spencer Moulds Date 2-9-2021

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
Honeywell	3500	18W17C4000005561651
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200.1	400.3	600.2	800.1
Deviation	0	0.1	0.3	0.2	0.1

N/A ■

Calibration Data (if Applicable)

	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

Tech Spencer Mouton Date 2-9-2021

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
Honeywell	3500	C4000000515057
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200	400.2	600.3	800.2
Deviation	0	0	0.2	0.3	0.2

N/A ■

Calibration Data (if Applicable)

	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

Tech Spencer Mouk Date 2-9-2021

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
Honeywell	2500	C4000000388350
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200.1	400.1	600.2	800.1
Deviation	0	0.1	0.1	0.2	0.1

N/A ■

Calibration Data (if Applicable)

	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

Tech Spencer Mowles Date 2-9-2021

JACKSON OVEN SUPPLY

Calibration Certificate

Calibrated Item

Manufacturer	Model	Serial Number
MRC 5000	51100011	45003132_0119
☐ Initial Calibration	☐ Recalibration	Cal. Date 2/9/2021

Standard Used

Manufacturer	Model	Serial Number
Fluke Calibrator	714	9721114
Date Calibrated	6/5/2020	Exp. Date 6/5/2021

All Calibrations are performed with instruments that have documented path of traceability to the international System of Units (SI)

Calibration Data

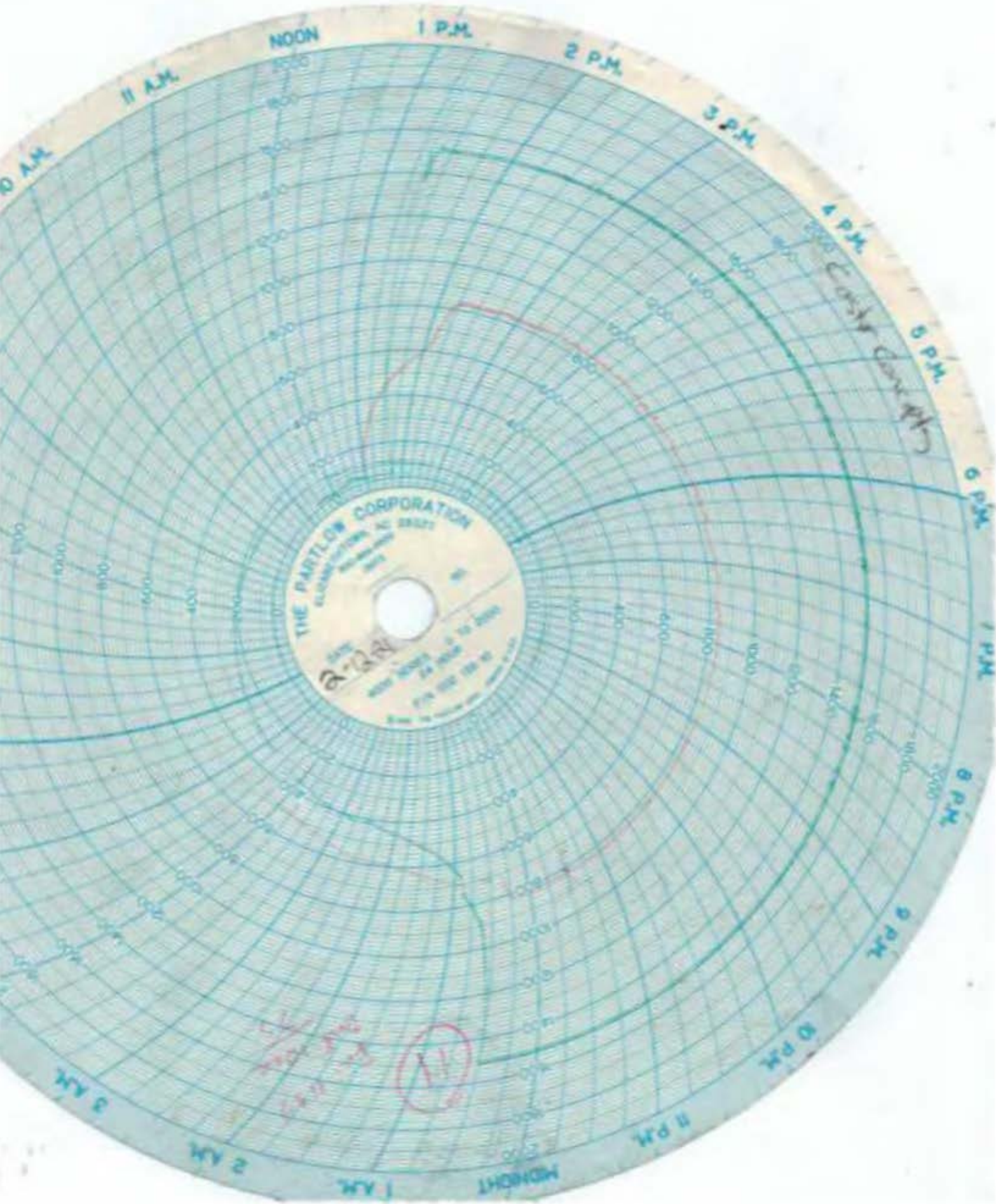
	Test Temperatures in Degrees				
Reference Value	0	200	400	600	800
Calibration Value	0	200.2	400.1	600	800.3
Deviation	0	0.2	0.1	0	0.3

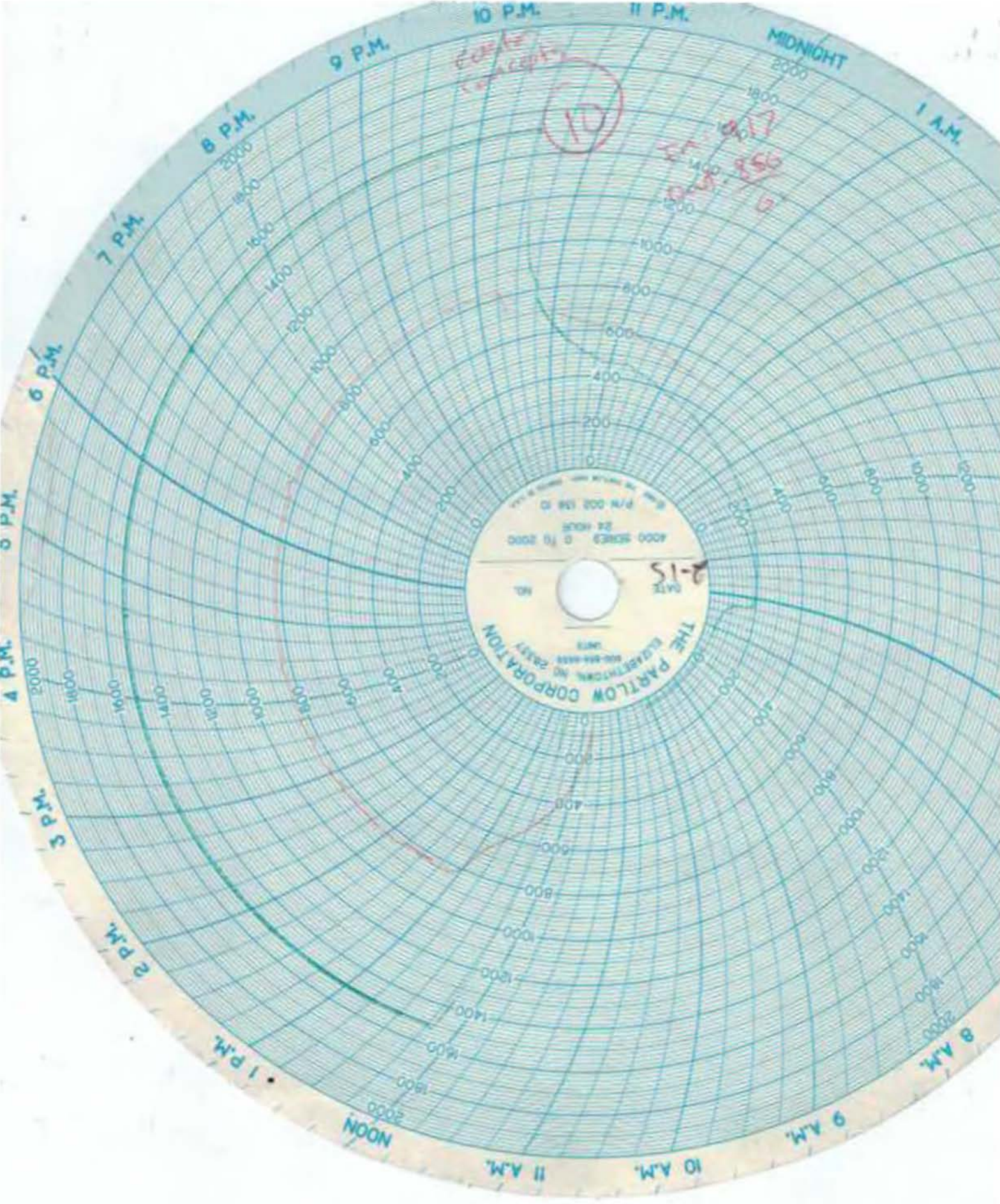
N/A ■

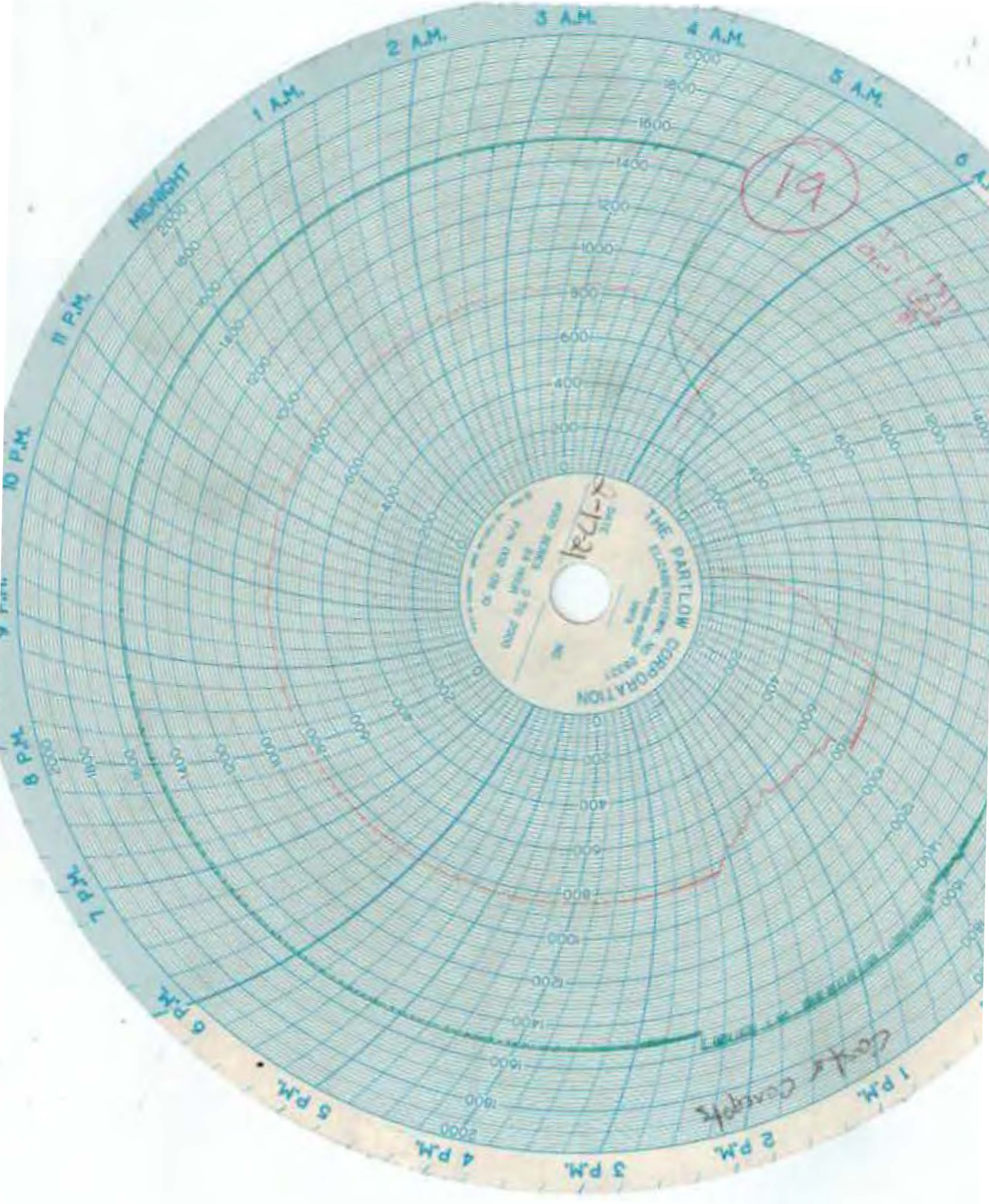
Calibration Data (if Applicable)

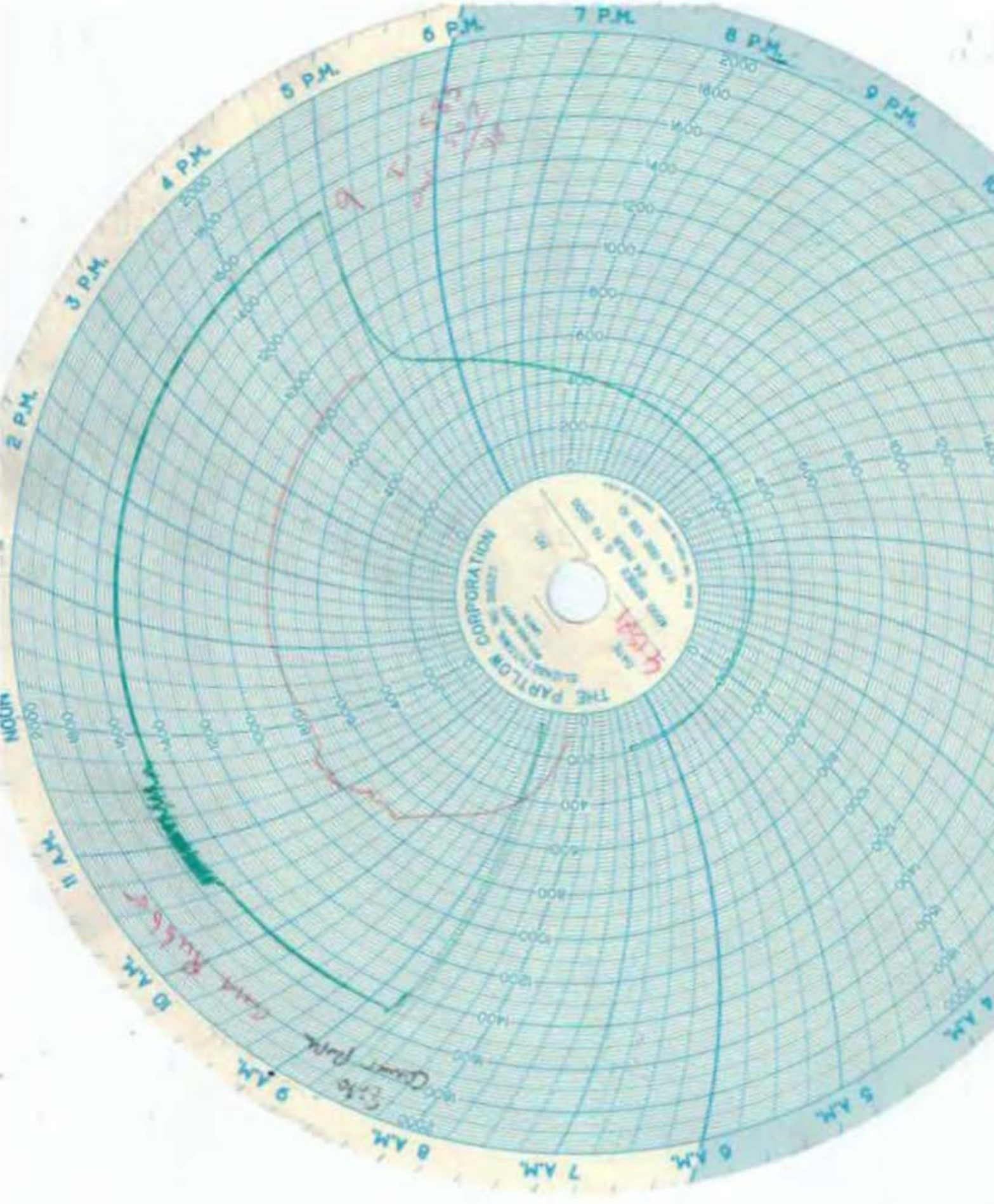
	Test Temperatures in Degrees				
Reference Value	0	100	200	300	400
Calibration Value					
Deviation					

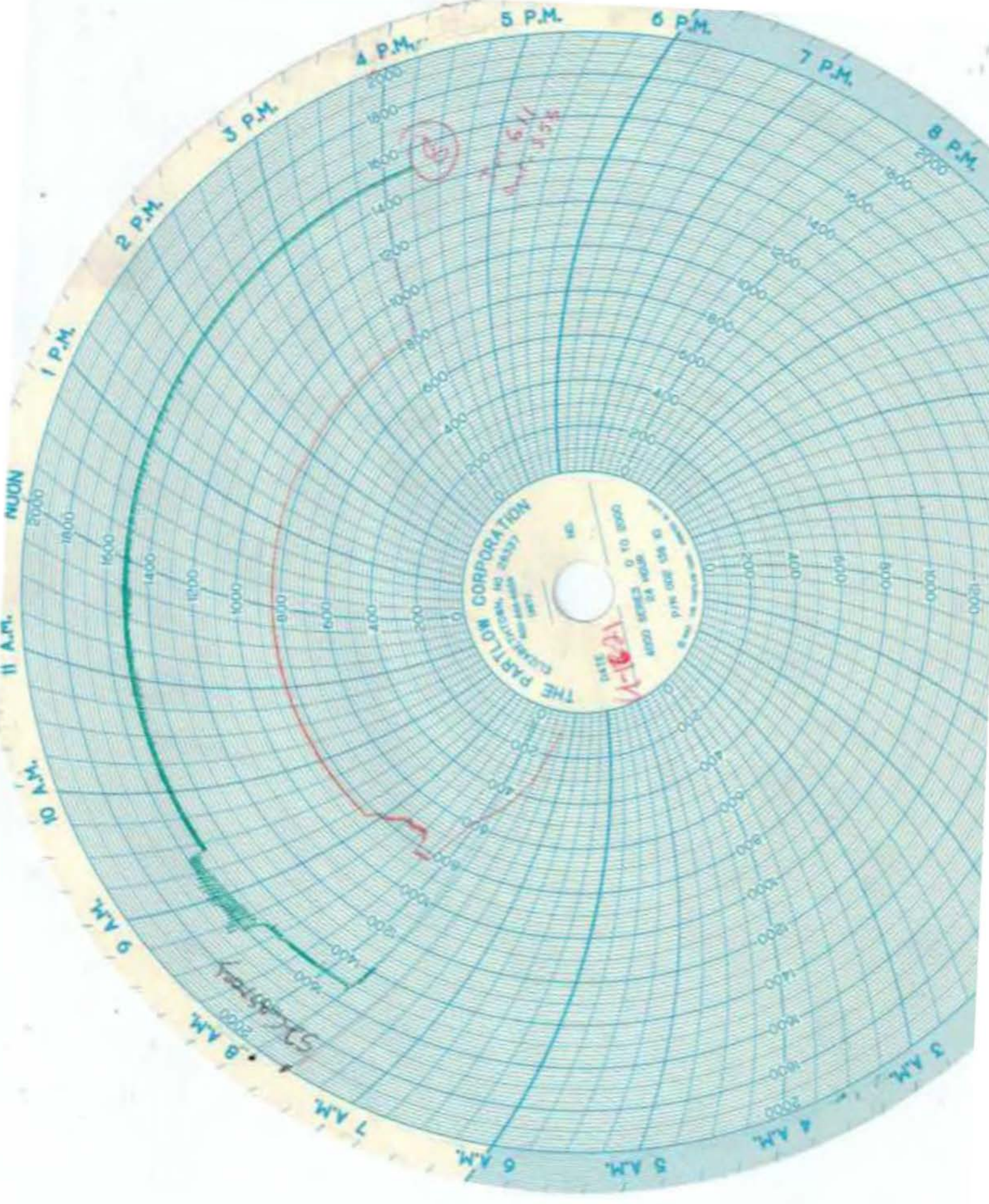
Tech Spencer Mont Date 2-9-2021

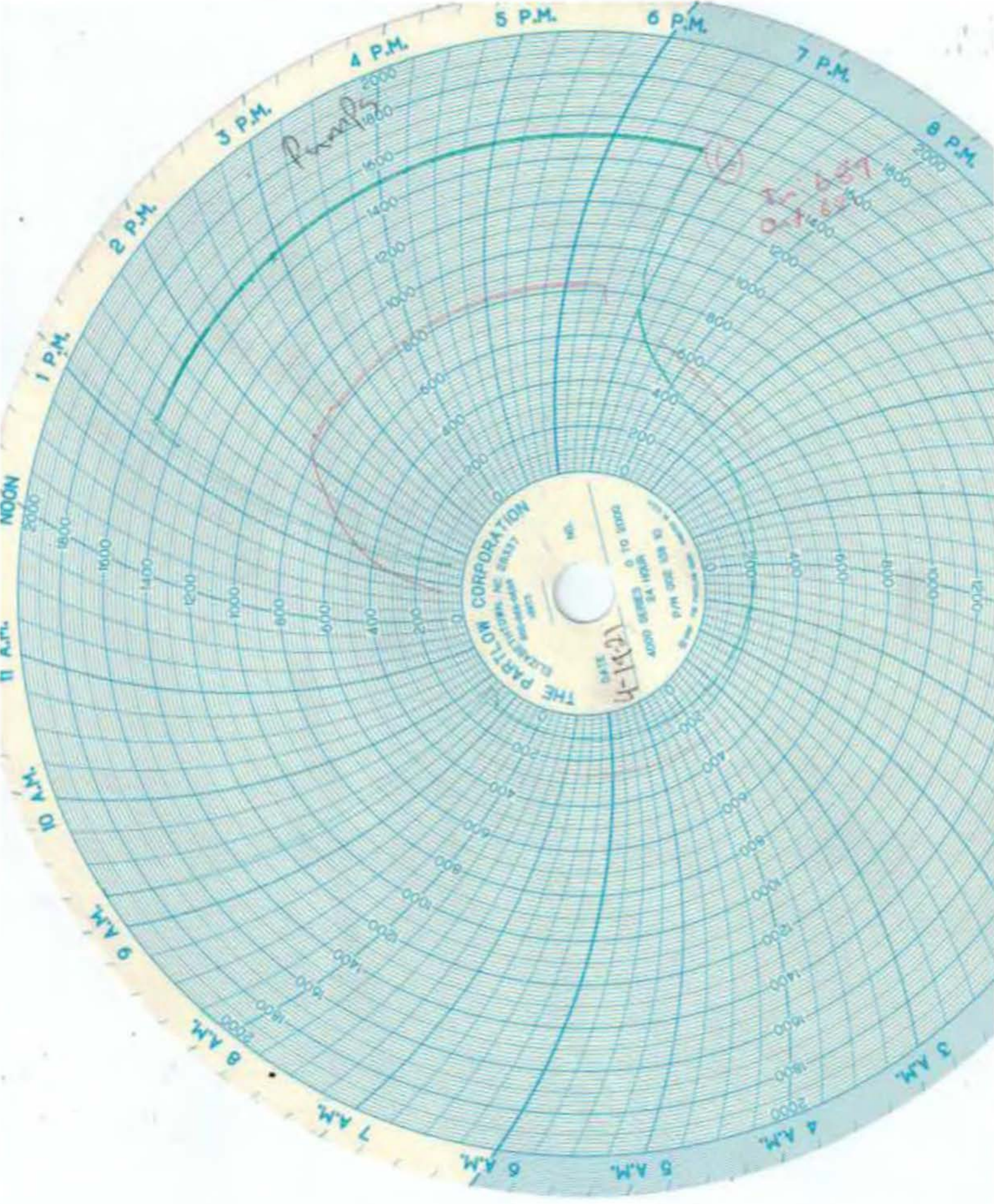

NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
11 A.M.
THE PARTLOW CORPORATION

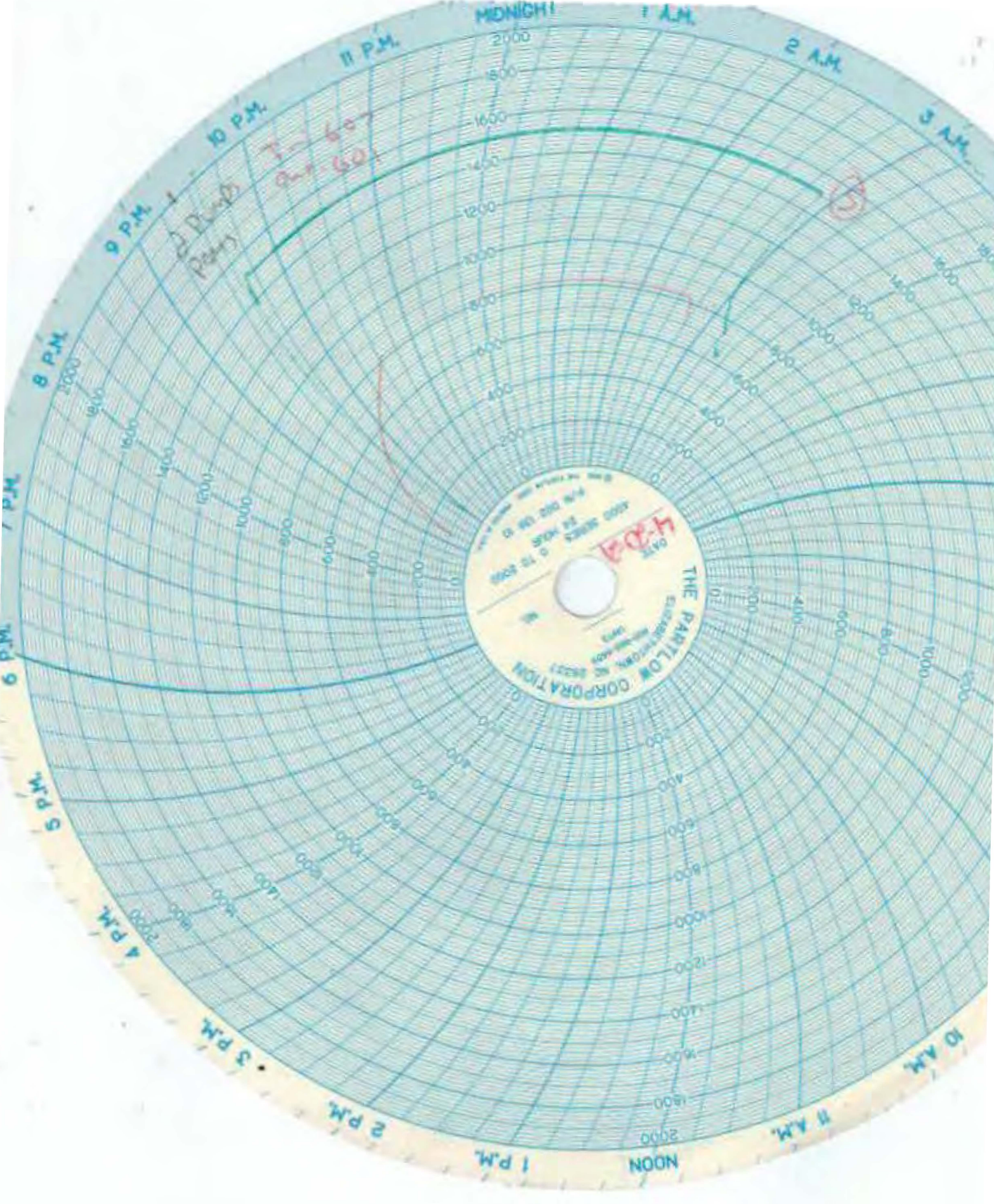

10 P.M.
11 P.M.
MIDNIGHT
1 A.M.
9 P.M.
8 P.M.
7 P.M.
6 P.M.
5 P.M.
4 P.M.
3 P.M.
2 P.M.
1 P.M.
NOON
11 A.M.
10 A.M.
9 A.M.
8 A.M.
THE PARTLOW CORPORATION
DATE
9-15
2000
1800
1600
1400
1200
1000
800
600
400
200
0

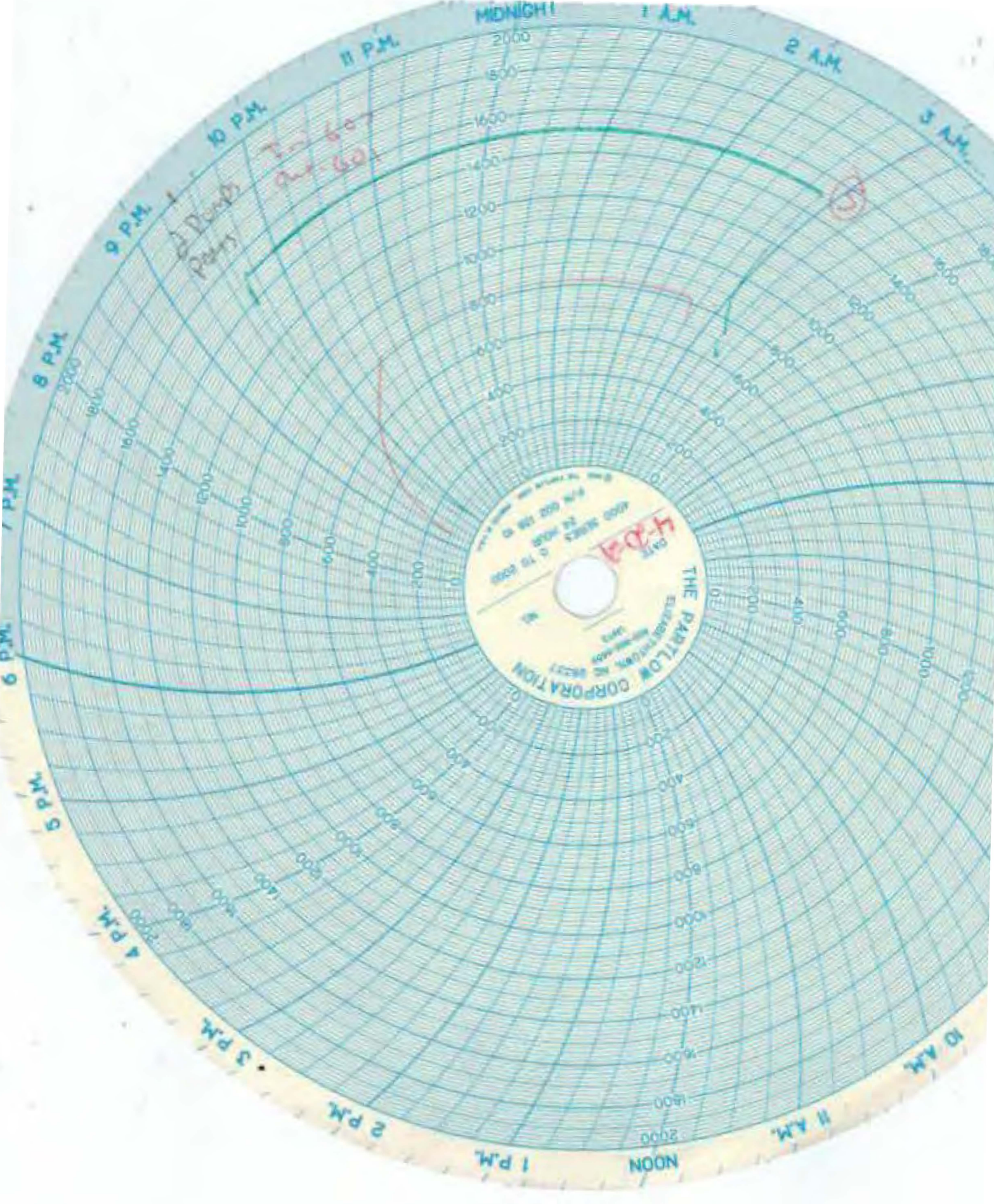

MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
4 A.M.
5 A.M.
11 P.M.
10 P.M.
8 P.M.
7 P.M.
6 P.M.
5 P.M.
4 P.M.
3 P.M.
2 P.M.
1 P.M.
19
TIME PARTLOW CORPORATION

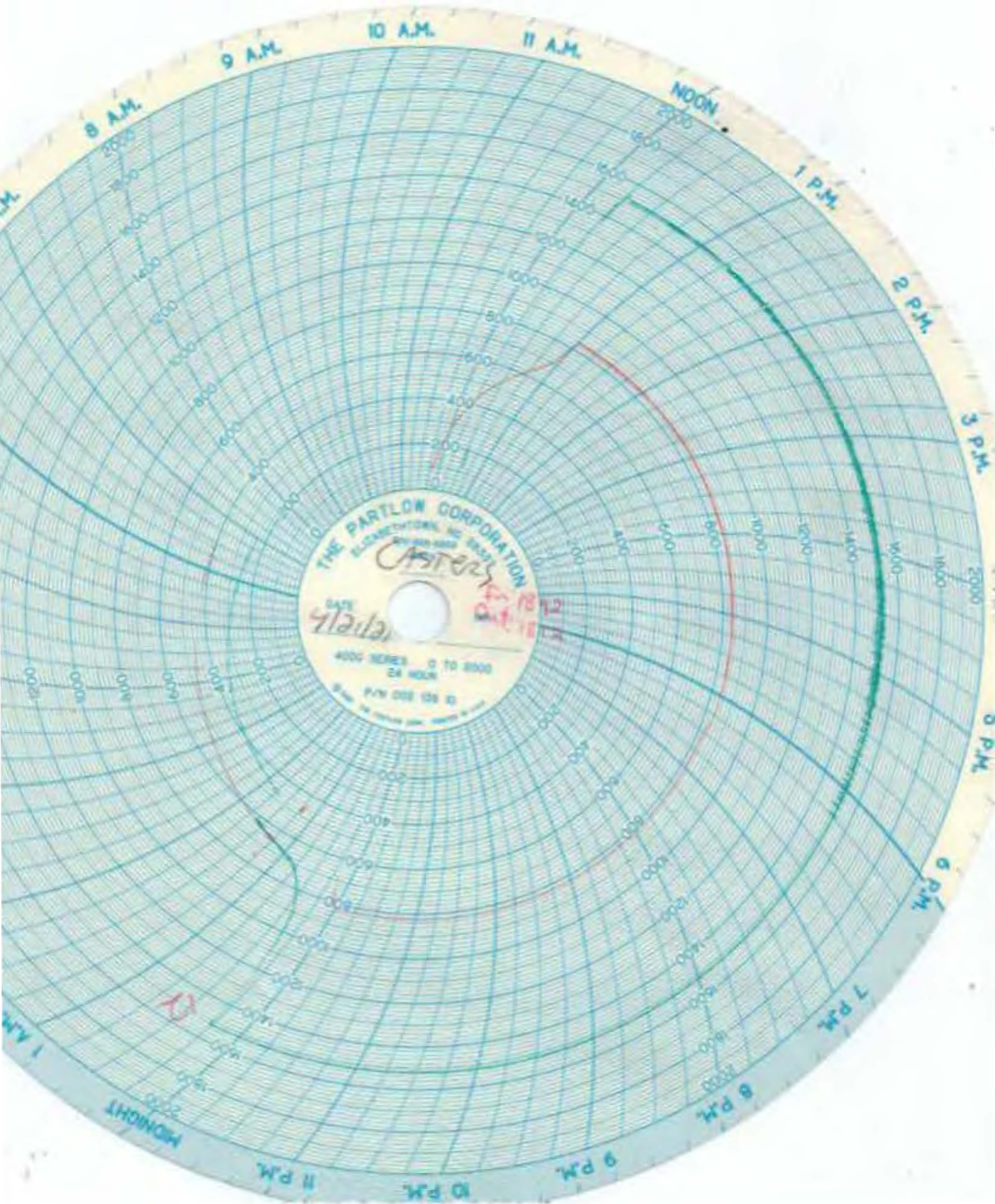

6 P.M.
7 P.M.
8 P.M.
9 P.M.
5 P.M.
4 P.M.
3 P.M.
2 P.M.
NOON
11 A.M.
10 A.M.
9 A.M.
8 A.M.
7 A.M.
6 A.M.
5 A.M.
THE PARTLOW CORPORATION

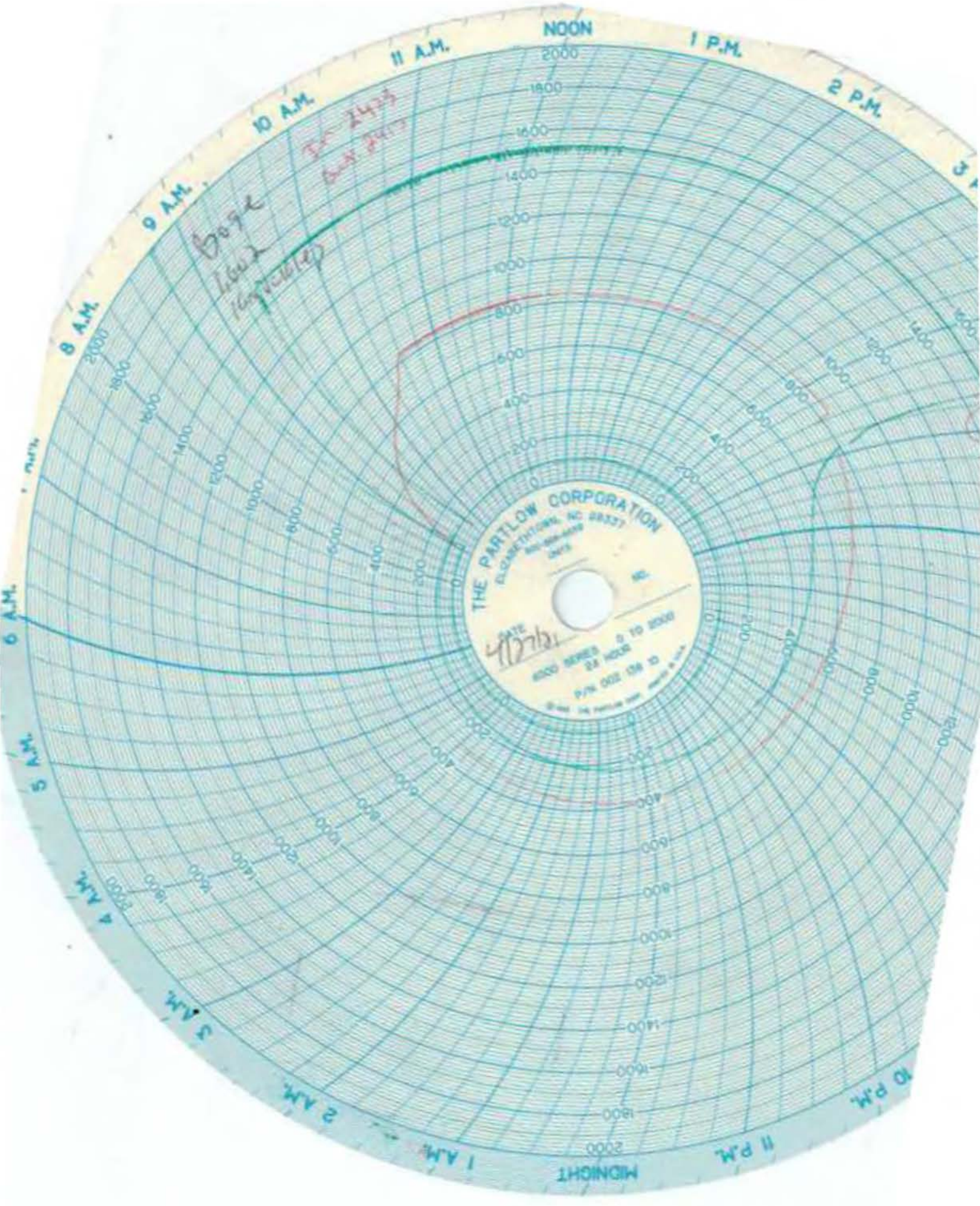

5 P.M.
6 P.M.
4 P.M.
7 P.M.
8 P.M.
3 P.M.
2 P.M.
1 P.M.
NOON
11 A.M.
10 A.M.
9 A.M.
8 A.M.
7 A.M.
6 A.M.
5 A.M.
4 A.M.
3 A.M.
THE PARTLOW CORPORATION

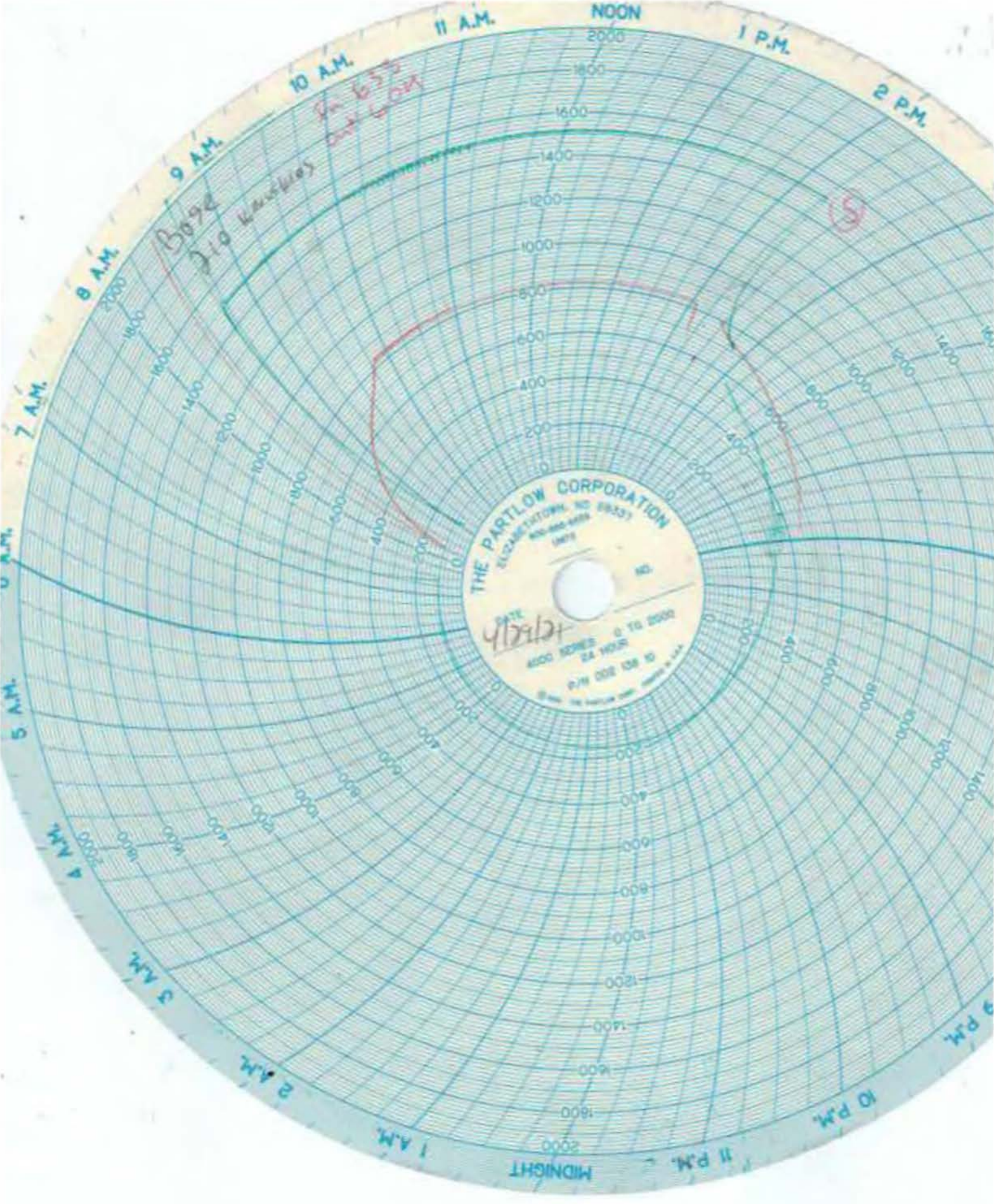

5 P.M.
6 P.M.
4 P.M.
7 P.M.
3 P.M.
8 P.M.
2 P.M.
1 P.M.
NOON
11 A.M.
10 A.M.
9 A.M.
8 A.M.
7 A.M.
6 A.M.
5 A.M.
4 A.M.
3 A.M.
THE PARTLOW CORPORATION

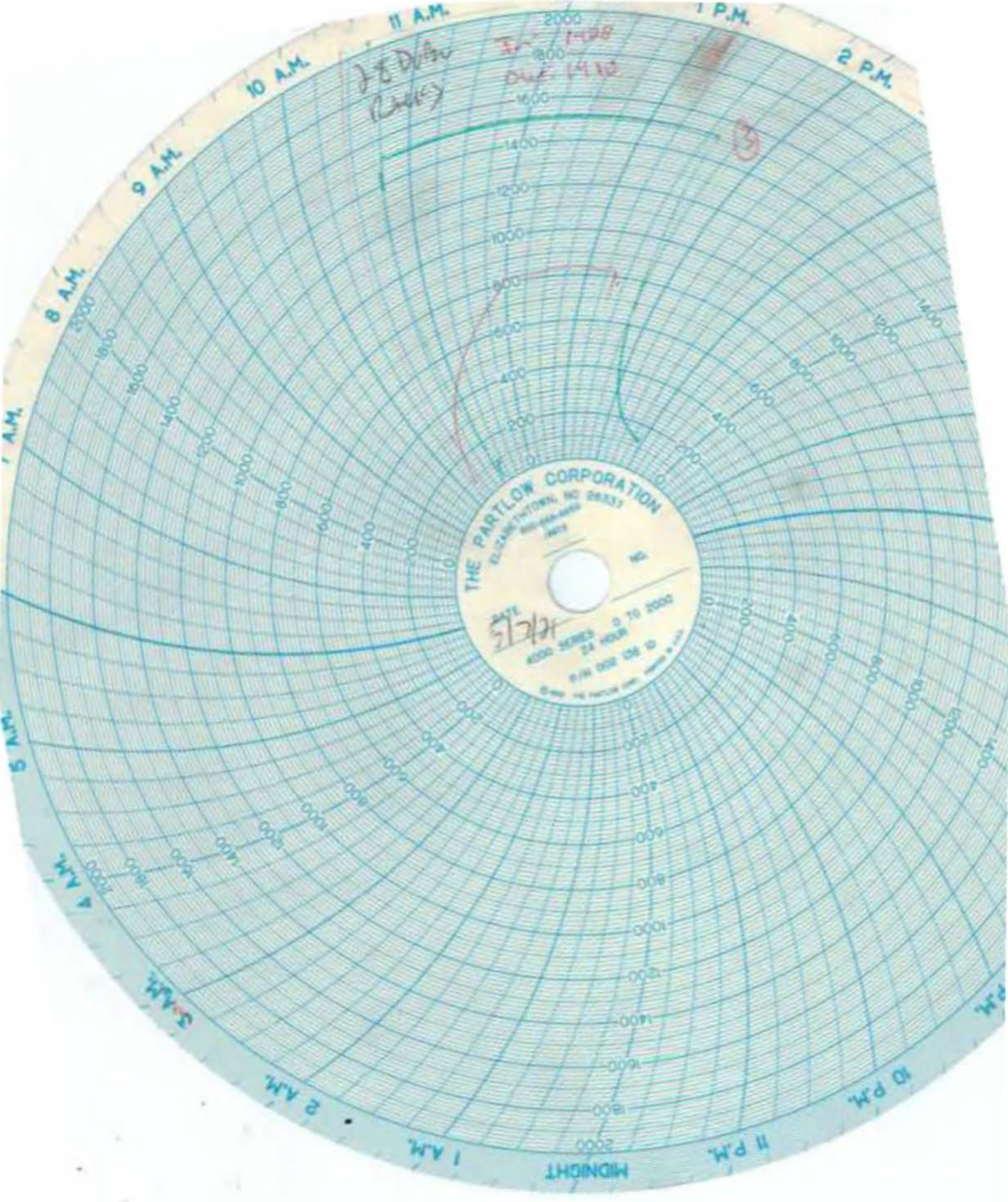

MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
10 P.M.
11 P.M.
9 P.M.
8 P.M.
7 P.M.
6 P.M.
5 P.M.
4 P.M.
3 P.M.
2 P.M.
1 P.M.
NOON
11 A.M.
10 A.M.
THE PARTLOW CORPORATION


MIDNIGHT
1 A.M.
2 A.M.
3 A.M.
10 P.M.
11 P.M.
9 P.M.
8 P.M.
7 P.M.
6 P.M.
5 P.M.
4 P.M.
3 P.M.
2 P.M.
1 P.M.
NOON
11 A.M.
10 A.M.
THE PARTLOW CORPORATION


8 A.M.
9 A.M.
10 A.M.
11 A.M.
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
9 P.M.
10 P.M.
11 P.M.
MIDNIGHT
THE PARTLOW CORPORATION
Astech
400C SERIES 0 TO 2000
24 HOUR


NOON
1 P.M.
2 P.M.
11 A.M.
10 A.M.
9 A.M.
8 A.M.
6 A.M.
5 A.M.
4 A.M.
3 A.M.
2 A.M.
1 A.M.
MIDNIGHT
11 P.M.
10 P.M.
THE PARTLOW CORPORATION


NOON
1 P.M.
2 P.M.
11 A.M.
10 A.M.
9 A.M.
8 A.M.
7 A.M.
6 A.M.
5 A.M.
4 A.M.
3 A.M.
2 A.M.
1 A.M.
MIDNIGHT
11 P.M.
10 P.M.
9 P.M.
THE PARTLOW CORPORATION
Boyd
3rd Floor
(5)


11 A.M.
1 P.M.
10 A.M.
2 P.M.
9 A.M.
8 A.M.
5 A.M.
4 A.M.
3 A.M.
2 A.M.
1 A.M.
MIDNIGHT
11 P.M.
10 P.M.
THE PARTLOW CORPORATION

Curene 45

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	Curene 45
Synonyms:	1,4 BDO
Common Name:	1,4 Butanediol
SDS Number:	Curene 45-F0406-US
Revision Date:	3/31/2016
Version:	2
CAS Number:	110-63-4
Chemical Family:	Glycols
Product Use:	For industrial or professional use only. This material is used as a curing agent for the production of cast polyurethane elastomers and should not be used for spray systems.
Supplier Details:	Anderson Development Company 1415 East Michigan Street Adrian, MI 49221
Phone:	(517) 263-2121
Fax:	(517) 263-1000
Email:	sds@anddev.com
Web:	www.andersondevelopment.com

Emergency Phone Number: CHEMTREC US 1-800-424-9300

2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS):

Health, Acute toxicity, 4 Oral
Health, Specific target organ toxicity - Single exposure, 3

GHS Label elements, including precautionary statements

GHS Signal Word: WARNING

GHS Hazard Pictograms:

GHS Hazard Statements:

H302 - Harmful if swallowed
H336 - May cause drowsiness or dizziness

GHS Precautionary Statements:

P261 - Avoid breathing fume/mist/vapors.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P304+340 - IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P330 - Rinse mouth.
P403+233 - Store in a well ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with federal/local/state regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
110-63-4	100%	1,4-Butanediol

4 FIRST AID MEASURES

Inhalation: Move to an area free from the risk of further exposure. If not breathing, or breathing is difficult, obtain medical attention.

Skin Contact: Flush skin with plenty of water for at least 5 minutes while removing contaminated clothing and shoes. Wash thoroughly with soap and water. Get medical attention if irritation or rash develops on affected area. Wash clothing before reuse.

Eye Contact: Rinse with water immediately for 5 minutes. If irritation occurs, seek medical attention.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

5 FIRE FIGHTING MEASURES

Extinguishing media:
Suitable media includes carbon dioxide, dry chemical, water spray, and foam.

Special hazards arising from the substance or mixture:
Toxic and/or irritating fumes can be produced during burning of this material. Decomposition products may be hazardous (see section 10 for details on decomposition products).

Advice for firefighters:
Firefighters should wear self-contained breathing apparatus and full protective clothing. Downwind personnel should be evacuated.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures

Evacuate personnel. Wear suitable PPE as described in section 8.

Environmental precautions

Prevent migration into groundwater, sewers, or streams. Land spills may require excavation of contaminated soil.

Material should not be released into the environment.

Methods and materials for containment and cleaning up

Recover the spilled liquid with an invactive absorbent (e.g. dry sand) and put into chemical waste container. Prevent liquid from entering sewers, watercourses, etc.

7 HANDLING AND STORAGE

Handling Precautions:	Precautions for safe handling Use in a well ventilated area, using good industrial hygiene practices. Avoid contact with eyes, skin, and clothing, and wear proper PPE (see section 8).
Storage Requirements:	Conditions for safe storage, including anything that is incompatible Store material at ambient temperature and pressure. Keep away from sources of direct heat. Material is hygroscopic. Keep container tightly closed when not in use. Containers can retain product residue after being emptied. Always obey hazards warnings and handle empty containers as though they were full. Material is stable under normal conditions.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:	Provide local exhaust ventilation to keep airborne concentrations below the recommended occupational exposure limits.
Personal Protective Equipment:	HMIS PP, C | Safety Glasses, Gloves, Apron Hand: Chemical resistant gloves (e.g. nitrile, latex, butyl rubber) Eye: Safety glasses with side shields or safety goggles Skin: Impervious clothing, including but not limited to apron, full body suit, chemical resistant shoes or shoe covers. Use long sleeves at a minimum. Respiratory: If concentrations are above the occupational exposure limits, an approved respirator should be used (air-purifying or air supplied)

No Occupational Exposure Limits have been established.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless		
Physical State:	Liquid	Odor:	No data available
Odor Threshold:	N/A	Solubility:	No data available
Particle Size:	N/A	Freezing/Melting Pt.:	20°C (68°F)
Spec Grav./Density:	1.017 g/cm3 (25°C/77°F)	Flash Point:	115°C (239°F)
Viscosity:	70cP (25°C/77°F)	Vapor Density:	No data available
Boiling Point:	N/A	Auto-Ignition Temp:	385°C (725°F)
Partition Coefficient:	No data available	UFL/LFL:	No data available
Vapor Pressure:	0.014hPa (25°C/77°F)		
pH:	No data available		
Evap. Rate:	N/A		
Decomp Temp:	No data available		

10 STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal use/storage conditions.
Conditions to Avoid:	Exposure to extreme temperatures.
Materials to Avoid:	Oxidizing agents, reducing agents and strong bases.
Hazardous Decomposition:	May liberate carbon oxides during a fire.
Hazardous Polymerization:	Hazardous Polymerization will not occur.

11 TOXICOLOGICAL INFORMATION

Acute toxicity:

LD50 (oral): 1500 mg/kg (rat)

LD50 (dermal): >2000mg/kg (rat)

LD50 (inhalation): >5.1g/mL (rat, 4h)

Irritation/Sensitization: not an irritant or sensitizer

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data available

Biodegradability and Persistence: Product is readily biodegradable

13 DISPOSAL CONSIDERATIONS

Waste treatments methods: Follow all applicable local, state, and federal disposal regulations.

14 TRANSPORT INFORMATION

Not Transportation Regulated

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

1,4-Butanediol (110-63-4) [100%] HAP, TSCA, TXAIR

```
Regulatory CODE Descriptions
-----------------------------------------------------------------
HAP = Hazardous Air Pollutants
TSCA = Toxic Substances Control Act
TXAIR = TX Air Contaminants with Health Effects Screening Level
```

16 OTHER INFORMATION

Abbreviaton Key:

PEL - permissible exposure limit
TWA - time weighted average
TLV - threshold limit value
STEL - short term exposure limit
IDLH - immediately dangerous to life and health
OSHA - Occupational Safety and Health Administration
ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH - National Institute for Occupational Safety and Health
N/A - Not applicable
LC_{50} - lethal concentration to 50% of test subjects
LD_{50} - lethal dose to 50% of test subjects
STOT-SE - Specific target organ toxicity (single exposure)
STOT-RE - Specific target organ toxicity (repeated exposure)
EC_{50} - effective concentration that causes 50% of response from test subjects
ErC_{50} - EC_{50} in terms of growth rate reduction
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
SARA - Superfund Amendments and Reauthorization Act
TSCA - Toxic Substances Control Act

DSL - Domestic Substances List
NDSL - Non-Domestic Substances List

This SDS complies with 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD, USA) and GHS. Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Anderson Development Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Anderson Development Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either express or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial and local laws and regulations.

Date of preparation: 3/31/16

Curene 442

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	**Curene 442**
Synonyms:	**4,4'-Methylene bis(2-chloroaniline)**
Common Name:	**MOCA**
SDS Number:	**Curene 442-F0179-US**
Revision Date:	**2/13/2019**
Version:	**5**
CAS Number:	**101-14-4**
Chemical Family:	**Aromatic Diamine**
Product Use:	**For industrial or professional use only. This material is used as a curing agent for the production of cast polyurethane elastomers.**
Supplier Details:	**Anderson Development Company 1415 East Michigan Street Adrian, MI 49221**
Phone:	**(517) 263-2121**
Fax:	**(517) 263-1000**
Email:	**sds@anddev.com**
Web:	**www.andersondevelopment.com**

Emergency Phone Number: CHEMTREC US 1-800-424-9300

2 HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

Health, Carcinogenicity, 1 B
Health, Germ cell mutagenicity, 2
Health, Acute toxicity, 4 Oral

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: DANGER

GHS Hazard Pictograms:

GHS Hazard Statements:

H350 - May cause cancer
H341 - Suspected of causing genetic defects
H302 - Harmful if swallowed

GHS Precautionary Statements:

P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+312 - IF SWALLOWED: Call a POISON CENTER if you feel unwell.
P308+313 - IF exposed or concerned: Get medical advice/attention.
P330 - Rinse mouth.
P405 - Store locked up.
P501 - Dispose of container in accordance with federal/local/state regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
101-14-4	>90%	4,4'-Methylene bis(2-chloroaniline) (MOCA)

-The exact percentage of the components has been withheld as a Trade Secret.

4 FIRST AID MEASURES

Inhalation: **Move to an area free from the risk of further exposure. If not breathing, or breathing is difficult, obtain medical attention.**

Skin Contact: **Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash thoroughly with soap and water. Get medical attention if irritation or rash develops on affected area. Wash clothing before reuse.**

Eye Contact: **Rinse with water immediately for 15 minutes. Remove contact lenses if present. If irritation occurs, seek medical attention.**

Ingestion: **Do not induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.**

Most Important Symptoms/Effects: See Section 11

5 FIRE FIGHTING MEASURES

Extinguishing media:
Suitable media includes carbon dioxide, dry chemical and foam.
Inappropriate media: water spray or water discharge.

Special hazards arising from the substance or mixture:
Toxic and/or irritating fumes can be produced during burning of this material. Decomposition products may be hazardous (see section 10 for details on decomposition products).

Advice for firefighters:
Firefighters should wear self-contained breathing apparatus and full protective clothing. Downwind personnel should be evacuated. Do not reseal contaminated containers as pressure buildup may rupture them.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:
Evacuate personnel. Wear suitable PPE as described in section 8.

Environmental precautions:
Prevent migration into groundwater, sewers, or streams. Land spills may require excavation of contaminated soil. Material should not be released into the environment.

Methods and materials for containment and cleaning up:
Recover the spilled liquid with an inactive absorbent (e.g. dry sand) and put into chemical waste container. Prevent liquid from entering sewers, watercourses, etc.
For solid: Sweep and collect the solid in a container and store until disposal.

7 HANDLING AND STORAGE

Handling Precautions:

Precautions for safe handling
Use in a well ventilated area, using good industrial hygiene practices. Avoid contact with eyes, skin, and clothing, and wear proper PPE (see section 8).

Storage Requirements:

Conditions for safe storage, including anything that is incompatible
Store material at ambient temperature and pressure. Keep away from sources of direct heat and moisture. Keep container tightly closed when not in use. Containers can retain product residue after being emptied. Always obey hazards warnings and handle empty containers as though they were full. Material is stable under normal conditions.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls:

Provide local exhaust ventilation to keep airborne concentrations below the recommended occupational exposure limits.

Personal Protective Equipment:

HMIS PP, C | Safety Glasses, Gloves, Apron
4,4'-Methylene bis(2-chloroaniline) (MOCA) (101-14-4) [100%]

Personal protective equipment:
Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching gloves outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:Dermatril (KCL 740 / Aldrich Z677272, Size M) Splash contact data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Chemical Name	Limit Type	Value	Comments
4,4'-Methylene bis(2-chloroaniline)	PEL-TWA	none	OSHA Guideline
4,4'-Methylene bis(2-chloroaniline)	TLV-TWA	0.01 ppm	ACGIH Guideline
4,4'-Methylene bis(2-chloroaniline)	REL-TWA	0.003 mg/m3	NIOSH Guideline

***skin notation/BEI**

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	**Yellow to Yellowish brown**		
Physical State:	**Solid**	**Odor:**	**Slight aromatic**
Odor Threshold:	**Not determined**	**Molecular Formula:**	**C13H12Cl2N2**
Spec Grav./Density:	**1.44 g/cm3 (solid) / 1.26 g/cm3 (110°C)**	**Solubility:**	**0.48mg/L (water)**
Viscosity:	**10cP (120°C)**	**Freezing/Melting Pt.:**	**100-110°C (212-230°F)**
Boiling Point:	**Not applicable**	**Flash Point:**	**Not applicable**
Flammability:	**Not applicable**	**Octanol:**	**Not determined**
Partition Coefficient:	**log Pow = 3.91 (measured)**	**Vapor Density:**	**9.21 (calculated)**
Vapor Pressure:	**0.000381 hPa (25°C)**	**Auto-Ignition Temp:**	**Not determined**
pH:	**weak alkalinity**	**UFL/LFL:**	**Not applicable**
Evap. Rate:	**Not applicable**		
Decomp Temp:	**200°C**		

10 STABILITY AND REACTIVITY

Reactivity: **Reacts with mineral acid to form a salt.**

Chemical Stability: **Stable under normal storage conditions.**

Conditions to Avoid: **Exposure to temperatures above 200°C may liberate 2-Chloroaniline. Avoid contact with incompatible materials.**

Materials to Avoid: **Oxidizing agents, reducing agents and strong bases.**

Hazardous Decomposition: **May liberate hydrogen chloride, phosgene, carbon monoxide, and carbon dioxide and nitrogen oxides.**

Hazardous Polymerization: **Hazardous Polymerization will not occur.**

11 TOXICOLOGICAL INFORMATION

Routes of Exposure and Health Effects/Symptoms:

Inhalation: Harmful in inhaled; may cause respiratory irritation.
Skin contact: May cause skin irritation. A component may be absorbed thru the skin in harmful amounts.
Eye contact: May cause eye irritation.
Ingestion: Harmful if swallowed. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Immediate and Delayed Health Effects: Irritation, Exposure may cause damage to organs (lungs, liver, kidney, hematologic system).

Symptoms: 4,4'-Methylene bis(2-chloroaniline) (MOCA)- (101-14-4)
hematuria (blood in the urine), cyanosis, nausea, methemoglobinemia, kidney irritation

LD50s and LC50s: 4,4'-Methylene bis(2-chloroaniline) (MOCA)- (101-14-4)
LD50 (oral): 2,000 mg/kg (rat)
LD50 (Dermal): >2,000mg/kg (rabbit)

Carcinogenicity: 4,4'-Methylene bis(2-chloroaniline) (MOCA)- (101-14-4)
NTP: Reasonably anticipated to be a human carcinogen
IARC: Group 1
OSHA: None

Germ cell mutagenicity: 4,4'-Methylene bis(2-chloroaniline) (MOCA)- (101-14-4)
Laboratory experiments have shown mutagenic effects.

12 ECOLOGICAL INFORMATION

No data on product available.

4,4'-Methylene bis(2-chloroaniline) (MOCA) (101-14-4):
Endpoint/Species/Duration/Result
LC50/Fish/96 hours/0.606mg/L
EC50/Daphnia/48 hours/0.92mg/L
EC50/Algae/72 hours/>0.85mg/L

Persistence and degradability: Does not rapidly biodegrade.

Bioaccumulative potential: Not data available on product.

Mobility in soil: No data available on product.

13 DISPOSAL CONSIDERATIONS

Follow all applicable local, state, and federal disposal regulations.

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

14 TRANSPORT INFORMATION

DOT (US)
RQ, UN3077, Environmentally Hazardous Sublstance, Solid, N.O.S. (4,4'-Methylene bis(2-chloroaniline), 9, III
Reportable Quantity (RQ): 10 lbs

IMDG
UN3077, Environmentally Hazardous Sublstance, Solid, N.O.S. (4,4'-Methylene bis(2-chloroaniline), 9, III
Marine Pollutant

IATA
UN3077, Environmentally Hazardous Sublstance, Solid, N.O.S. (4,4'-Methylene bis(2-chloroaniline), 9, III
Marine Pollutant

15 REGULATORY INFORMATION

COMPONENT / (CAS/PERC) / CODES

***4,4'-Methylene bis(2-chloroaniline) (MOCA) (101144 100%) HAP, MASS, NJHS, NRC, OSHAWAC, PA, TOXICRCRA, TXAIR, TXHWL**
REGULATORY KEY DESCRIPTIONS

HAP = Hazardous Air Pollutants
MASS = MA Massachusetts Hazardous Substances List
NJHS = NJ Right-to-Know Hazardous Substances
NRC = Nationally Recognized Carcinogens
OSHAWAC = OSHA Workplace Air Contaminants
PA = PA Right-To-Know List of Hazardous Substances
TOXICRCRA = RCRA Toxic Hazardous Wastes (U-List)
TXAIR = TX Air Contaminants with Health Effects Screening Level
TXHWL = TX Hazardous Waste List

4,4'-Methylene bis(2-chloroaniline)
Reportable Quantity: 10 pounds
California Proposition 65: known to cause cancer by the state of California
SARA TITLE III: Section 313

Country / Inventory / Status:
United States / TSCA / On the inventory
Canada / DSL / On the inventory

16 OTHER INFORMATION

Abbreviaton Key:
PEL - permissible exposure limit
TWA - time weighted average
TLV - threshold limit value
STEL - short term exposure limit
IDLH - immediately dangerous to life and health
OSHA - Occupational Safety and Health Administration
ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH - National Institute for Occupational Safety and Health
N/A - Not applicable
LC_{50} - lethal concentration to 50% of test subjects
LD_{50} - lethal dose to 50% of test subjects
STOT-SE - Specific target organ toxicity (single exposure)
STOT-RE - Specific target organ toxicity (repeated exposure)
EC_{50} - effective concentration that causes 50% of response from test subjects
ErC_{50} - EC_{50} in terms of growth rate reduction
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
SARA - Superfund Amendments and Reauthorization Act
TSCA - Toxic Substances Control Act
DSL - Domestic Substances List
NDSL - Non-Domestic Substances List

This SDS complies with 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD, USA) and GHS. Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Anderson Development Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Anderson Development Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either express or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial and local laws and regulations.

Curene BA 1000

1 PRODUCT AND COMPANY IDENTIFICATION

Product Identifier:	**Curene BA 1000**
SDS Number:	**CureneBA1000-F0428-US**
Revision Date:	**5/22/2018**
Version:	**3**
Chemical Family:	**Polyols**
Product Use:	**For industrial or professional use only. This material is used as a curing agent for the production of cast polyurethane elastomers and should not be used for spray systems.**
Supplier Details:	**Anderson Development Company 1415 East Michigan Street Adrian, MI 49221**
Phone:	**(517) 263-2121**
Fax:	**(517) 263-1000**
Email:	**sds@anddev.com**
Web:	**www.andersondevelopment.com**

Emergency Phone Number: CHEMTREC US 1-800-424-9300

2 HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS Classification in Accordance with 29 CFR 1910 (OSHA HCS):

No GHS Classifications Indicated

GHS Label Elements, Including Precautionary Statements

GHS Signal Word: NONE

no GHS pictograms indicated for this product

GHS Hazard Statements:

no GHS hazards statements indicated

GHS Precautionary Statements:

no GHS precautionary statements indicated

Hazards not Otherwise Classified (HNOC) or not Covered by GHS

While this material is not considered hazardous according to the OSHA Hazard Communication Standard (29CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

Cas#	%	Chemical Name
25103-87-1	100%	Hexanedioic acid, polymer with 1,4-butanediol

4 FIRST AID MEASURES

Inhalation: Move to an area free from the risk of further exposure. If not breathing, or breathing is difficult, obtain medical attention.

Skin Contact: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash thoroughly with soap and water. Get medical attention if irritation or rash develops on affected area. Wash clothing before reuse.

Eye Contact: Rinse with water immediately for 15 minutes. If irritation occurs, seek medical attention.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical attention.

Most Important Symptoms/Effects: See Section 11

5 FIRE FIGHTING MEASURES

Extinguishing media:
Suitable media includes carbon dioxide, dry chemical, water spray, and foam.

Special hazards arising from the substance or mixture:
Toxic and/or irritating fumes can be produced during burning of this material. Decomposition products may be hazardous (see section 10 for details on decomposition products).

Advice for firefighters:
Firefighters should wear self-contained breathing apparatus and full protective clothing. Downwind personnel should be evacuated.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:
Evacuate personnel. Wear suitable PPE as described in section 8.

Environmental precautions:
Prevent migration into groundwater, sewers, or streams. Material should not be released into the environment.

Methods and materials for containment and cleaning up:
Recover the spilled liquid with an inactive absorbent (e.g. dry sand) and put into chemical waste container. Prevent liquid from entering sewers, watercourses, etc.

7 HANDLING AND STORAGE

Handling Precautions:

Precautions for safe handling
Use in a well ventilated area, using good industrial hygiene practices. Avoid contact with eyes, skin, and clothing, and wear proper PPE (see section 8).

Storage Requirements:

Conditions for safe storage, including anything that is incompatible
Store material at ambient temperature and pressure. Keep away from sources of direct heat. Protect from freezing. Keep container tightly closed when not in use. Containers can retain product residue after being emptied. Always obey hazards warnings and handle empty containers as though they were full.

Material is stable under normal conditions.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Provide local exhaust ventilation to keep airborne concentrations below the recommended occupational exposure limits.

Personal Protective Equipment:

Hand: Chemical resistant gloves. Gloves should be tested to determine suitability for prolonged contact.

Eye: Safety glasses with side shields or safety goggles.

Skin: Impervious clothing, including but not limited to apron, full body suit, chemical resistant shoes or shoe covers. Use long sleeves at a minimum.

Respiratory: If concentrations are above the occupational exposure limits, an approved respirator should be used (air-purifying or air supplied).

Occupational Exposure Limit(s):

ACGIH TLV: None
OSHA PEL: None
AIHA WEEL: None
NIOSH REL: None

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colorless		
Physical State:	Solid	**Odor:**	No data available
Odor Threshold:	N/A	**Solubility:**	No data available
Particle Size:	N/A	**Freezing/Melting Pt.:**	55°C/131°F
Spec Grav./Density:	9.13 lb/USg (25°C/77°F)	**Flash Point:**	193°C (379°F)
Viscosity:	335cP (60°C/140°F)	**Vapor Density:**	No data available
Boiling Point:	No data available	**Auto-Ignition Temp:**	No data available
Partition Coefficient:	No data available	**UFL/LFL:**	No data available
Vapor Pressure:	<0.1 hPa		
pH:	No data available		
Evap. Rate:	N/A		
Decomp Temp:	No data available		

10 STABILITY AND REACTIVITY

Reactivity: None expected under normal use/storage conditions.

Chemical Stability: Stable under normal use/storage conditions.

Conditions to Avoid: Exposure to extreme temperatures.

Materials to Avoid: Oxidizing agents, acids, isocyanates.

Hazardous Decomposition: May liberate carbon oxides, nitrogen oxide, hydrogen cyanide during a fire.

Hazardous Polymerization: Hazardous Polymerization will not occur.

11 TOXICOLOGICAL INFORMATION

Routes of Exposure and Health Effects/Symptoms:

Inhalation: May be irritating to the respiratory system.
Skin contact: May cause skin irritation.
Eye contact: May cause eye irritation.
Ingestion: Not a likely route of entry. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Immediate and Delayed Health Effects: Irritation

LD50s and LC50s:
No data available on product.

Carcinogenicity:
NTP: None identified at levels greater than or equal to 0.1%
IARC: None identified at levels greater than or equal to 0.1%
OSHA: None identified at levels greater than or equal to 0.1%

12 ECOLOGICAL INFORMATION

No data available on product.

13 DISPOSAL CONSIDERATIONS

Follow all applicable local, state, and federal disposal regulations.

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

14 TRANSPORT INFORMATION

DOT (US)
Not Regulated

IMDG
Not Regulated

IATA
Not Regulated

15 REGULATORY INFORMATION

Component (CAS#) [%] - CODES

Hexanedioic acid, polymer with 1,4-butanediol (25103-87-1) [100%] TSCA

Regulatory CODE Descriptions

TSCA = Toxic Substances Control Act

Country / Inventory / Status:
United States / TSCA / On the inventory

16 OTHER INFORMATION

Abbreviaton Key:
PEL - permissible exposure limit
TWA - time weighted average
TLV - threshold limit value
STEL - short term exposure limit
IDLH - immediately dangerous to life and health
OSHA - Occupational Safety and Health Administration
ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH - National Institute for Occupational Safety and Health
N/A - Not applicable
LC_{50} - lethal concentration to 50% of test subjects
LD_{50} - lethal dose to 50% of test subjects
STOT-SE - Specific target organ toxicity (single exposure)
STOT-RE - Specific target organ toxicity (repeated exposure)
EC_{50} - effective concentration that causes 50% of response from test subjects
ErC_{50} - EC_{50} in terms of growth rate reduction
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
SARA - Superfund Amendments and Reauthorization Act
TSCA - Toxic Substances Control Act
DSL - Domestic Substances List
NDSL - Non-Domestic Substances List

This SDS complies with 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD, USA) and GHS. Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Anderson Development Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Anderson Development Company be responsible for damages of any nature whatsoever resulting from the use of, misuse or reliance upon information. No representations or warranties, either express or implied, or merchantability, fitness for a particular purpose or any other nature are made hereunder with respect to information or the product to which information refers. Regulatory requirements are subject to change and may differ from one location to another. It is the buyer's responsibility to ensure its activities comply with federal, state or provincial and local laws and regulations.

CASTER WHEEL POLYURETHANE PROCESSING CHART

DATE WEEK OF		DAY	CUSTOMER	CYCLE TIME (HRS)	WT BEFORE (LBS)	WT AFTER (LBS)	TOTAL MTL REMOVED (LBS)	CHLORINE CONTENT (%) BY WT	SULFUR CONTENT (%) BY WT	HCL PER DAY (LBS)	HCL PER MONTH (LBS)
JAN	30	MON					0	0	NA	0	0.00
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	6	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	13	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	20	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	27	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
FEB	3	MON					0	0	NA	0	8.34
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	10	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED	CC	11	1137	1062	75	3.825	NA	2.9502225	
		THU					0	0	NA	0	
		FRI	CC	10	917	856	61	3.111	NA	1.951604964	
	17	MON	CC	19	1317	1236	81	4.131	NA	3.441139524	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	24	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
MAR	2	MON					0	0	NA	0	0.00
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	9	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	16	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	23	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
	30	MON					0	0	NA	0	
		TUE					0	0	NA	0	
		WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	

		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	30	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	6	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
APR	13	WED					0	0	NA	0	
		THU	CC	8	611	553	58	2.958	NA	1.764364176	5.12
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE	CC	12	1892	1812	80	4.08	NA	3.3566976	
	20	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	27	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	4	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	11	WED					0	0	NA	0	
		THU					0	0	NA	0	
MAY		FRI					0	0	NA	0	0.00
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	18	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	25	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	1	WED					0	0	NA	0	
		THU	CC	12	896	805	91	4.641	NA	4.343252004	
		FRI	CC	9	755	679	76	3.876	NA	3.029419584	
		MON					0	0	NA	0	
		TUE	CC	9	773	709	64	3.264	NA	2.148286464	
	8	WED	CC	20	1347	1258	89	4.539	NA	4.154437764	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON	CC	10	714	660	54	2.754	NA	1.529395344	
		TUE	CC	19	1269	1182	87	4.437	NA	3.969819396	
JUN	15	WED	CC	12	1085	1009	76	3.876	NA	3.029419584	22.20
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	22	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	29	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	6	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	

	13	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
JULY		MON					0	0	NA	0	0.00
		TUE					0	0	NA	0	
	20	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	27	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	3	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	10	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
AUG		MON					0	0	NA	0	0.00
		TUE					0	0	NA	0	
	17	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	
		MON					0	0	NA	0	
		TUE					0	0	NA	0	
	24	WED					0	0	NA	0	
		THU					0	0	NA	0	
		FRI					0	0	NA	0	

R&S PROCESSING

SAFETY DATA SHEET

SECTION I: Chemical Product and Company Identification

TRADE NAME AND SYNONYMS: RS 44038A MB

CHEMICAL NAME AND SYNONYMS: Uncured Rubber Blend
CHEMICAL FAMILY: Mixture: Elastomeric / Polymeric / Petrochemical
FORMULA: Proprietary Trade Secret
CAS Number: Mixture

R & S PROCESSING COMPANY, INC.
15712 ILLINOIS AVE • P.O. BOX 2037
PARAMOUNT, CA 90723

INFORMATION: (562) 531 - 1403

EMERGENCY: (562) 531 - 1403

SECTION II: Hazards Identification

EMERGENCY OVERVIEW

Specific R&S Compounds may contain hydrocarbon oils with more than 0.1% aromatics, certain resins, metallic dithiocarbamates, and chlorine compounds which have been found to cause cancer in laboratory animals. R&S Compounds have not been evaluated as a whole for health effects. Information provided on health effects of R&S Compounds is based on the individual components of various compounds. In general, heating or processing R&S Compounds may result in product degradation or by-product formation creating additional hazards. See Section VIII and XI for additional details.

POTENTIAL HEALTH EFFECTS

EYE CONTACT:	Particulates, like other inert materials can be mechanically irritating.
INHALATION:	Negligible hazard at ambient temperature (-18 to 38 Deg C; 0 to 100 Deg F).
INGESTION:	May be harmful if swallowed.
SKIN CONTACT:	Experience shows no unusual dermatitis hazard from routine handling.

SECTION III: Composition / Information on Ingredients

There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION IV: First Aid Measures

EYE CONTACT:	Treat symptomatically.
INHALATION:	Treat symptomatically.
INGESTION:	Treat symptomatically.
SKIN CONTACT:	Wash with soap and water.
NOTE TO PHYSICIAN:	Treatment based on sound judgment of physician and individual reactions of patient.

SECTION V: Fire Fighting Measures

FLASH POINT:	Not applicable.
FLAMMABLE LIMITS -	
UPPER EXPLOSION LIMIT:	Not applicable.
LOWER EXPLOSION LIMIT:	Not applicable.
AUTO-IGNITION TEMPERATURE:	No data available.
SUITABLE EXTINGUISHING MEDIA:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
SPECIAL FIRE FIGHTING PROCEDURES:	Full-face self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.
UNUSUAL FIRE/EXPLOSION HAZARDS	None.

SECTION VI: Accidental Release Measures

Collect and return undamaged and uncontaminated material to container for reuse and reclamation. Place contaminated material in appropriately marked container for disposal. Refer to Section VIII of this MSDS for exposure control and personal protection. Refer to Section XIII of this MSDS for proper disposal methods.

SECTION VII: Handling and Storage

Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid formation of dust and aerosols. Store in cool dry place. Keep away from open flames, hot surfaces and sources of ignition.

SECTION VIII: Exposure Controls / Personal Protection

ENGINEERING MEASURES:	Use local exhaust ventilation over processing equipment. Where processing may release excessive dust or fumes, maintain respirable dust and fumes below control limits.
EYE / FACE PROTECTION:	Safety glasses with side shields.
GENERAL HYGIENE CONSIDERATIONS:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product.
PROTECTIVE CLOTHING:	Wear protective gloves and long sleeved shirt when handling hot polymers.
RESPIRATION PROTECTION:	Respirator use must be in accordance with OSHA Standard 29 CFR 1910.34.
EXPOSURE LIMIT(S):	There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION IX: Physical and Chemical Properties

FORM:	Solid	BOILING POINT (°F):	Not Applicable
APPEARANCE:	Amorphous Bulk	VAPOR PRESSURE (mm Hg,):	Not Applicable
* COLOR:	Various	VAPOR DENSITY (AIR=1):	Not Applicable
ODOR:	Not Determined	SOLUBILITY IN WATER:	Not Applicable
VOLATILE BY VOLUME, PERCENT:	Not Determined	EVAPORATION RATE (_____ = 1):	Not Applicable
* SPECIFIC GRAVITY (H_2O=1):	Various: 0.90 to 2.00	pH:	Not Applicable

NOTE (*): These data are dependent upon the specific R&S Compound and are provided with quality control data upon delivery.

SECTION X: Stability and Reactivity

GENERAL STABILITY CONSIDERATIONS:	Stable under recommended handling and storage conditions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon dioxide (CO)2, carbon monoxide, other hazardous materials, and smoke are all possible.
HAZARDOUS POLYMERIZATION:	Not anticipated under normal or recommended handling and storage conditions.
INCOMPATIBLE MATERIALS:	Strong acids and oxidizing agents.

SECTION XI: Toxicological Information

There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION XII: Ecological Information

No specific ecological data are available for R&S Compounds. Please refer to Section VI for information regarding accidental releases and section XV for regulatory reporting.

SECTION XIII: Disposal Considerations

Where possible, recycling is preferred to disposal or incineration. Classification, transportation and disposal of R&S Compounds should be conducted in accordance with applicable federal, state/provincial and local regulations.

SECTION XIV: Transport Information

R&S Compounds are not subject to DOT regulations.

SECTION XV: Regulatory Information

OSHA STATUS:	There are no known hazardous components above regulatory thresholds in R&S Compounds. However, thermal processing and decomposition fumes from R&S Compounds may be hazardous as noted in Section III.
TSCA STATUS:	All components of R&S Compounds are listed on the TSCA inventory or are exempt.
CERCLA REPORTABLE QUANTITY:	Not applicable.
SARA TITLE III, SECTION 313: CALIFORNIA PROPOSITION 65:	Specific R&S Compounds may contain hydrocarbon oils with more than 0.1% aromatics, certain resins, metallic dithiocarbamates, and chlorine compounds which have been found to cause cancer in laboratory animals. R&S Compounds have not been evaluated as a whole for health effects. Information provided on health effects of R&S Compounds is based on the individual components of various compounds. In general, heating or processing R&S Compounds may result in product degradation or by-product formation creating additional hazards. See Section VIII and XI for additional details.

SECTION XVI: Other Information

The information and recommendations contained in this Safety Data Sheet have been compiled from sources believed to be reliable, accurate, and current. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release. No warranty, guarantee, quality specification or representation is made as to the correctness or sufficiency of the information, The user of R&S Compounds is responsible for determining the suitability of these materials for use in a specific purpose, to adopt all appropriate measures necessary to safely use the materials: either alone or in combination with other products, and determine their environmental regulatory compliance obligations under any applicable or state laws.

NFPA 704M RATING

Health	1
Flammability	1
Reactivity	0
Other	

0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

HMIS RATING

Health	1
Flammability	1
Physical Hazard	0

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
* = Chronic Health Hazard

R&S PROCESSING

SAFETY DATA SHEET

SECTION I: Chemical Product and Company Identification

TRADE NAME AND SYNONYMS: RS 44048A MB

CHEMICAL NAME AND SYNONYMS: Uncured Rubber Blend
CHEMICAL FAMILY: Mixture: Elastomeric / Polymeric / Petrochemical
FORMULA: Proprietary Trade Secret
CAS Number: Mixture

R & S PROCESSING COMPANY, INC.
15712 ILLINOIS AVE • P.O. BOX 2037
PARAMOUNT, CA 90723

INFORMATION: (562) 531 - 1403

EMERGENCY: (562) 531 - 1403

SECTION II: Hazards Identification

EMERGENCY OVERVIEW

Specific R&S Compounds may contain hydrocarbon oils with more than 0.1% aromatics, certain resins, metallic dithiocarbamates, and chlorine compounds which have been found to cause cancer in laboratory animals. R&S Compounds have not been evaluated as a whole for health effects. Information provided on health effects of R&S Compounds is based on the individual components of various compounds. In general, heating or processing R&S Compounds may result in product degradation or by-product formation creating additional hazards. See Section VIII and XI for additional details.

POTENTIAL HEALTH EFFECTS

EYE CONTACT:	Particulates, like other inert materials can be mechanically irritating.
INHALATION:	Negligible hazard at ambient temperature (-18 to 38 Deg C; 0 to 100 Deg F).
INGESTION:	May be harmful if swallowed.
SKIN CONTACT:	Experience shows no unusual dermatitis hazard from routine handling.

SECTION III: Composition / Information on Ingredients

There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION IV: First Aid Measures

EYE CONTACT:	Treat symptomatically.
INHALATION:	Treat symptomatically.
INGESTION:	Treat symptomatically.
SKIN CONTACT:	Wash with soap and water.
NOTE TO PHYSICIAN:	Treatment based on sound judgment of physician and individual reactions of patient.

SECTION V: Fire Fighting Measures

FLASH POINT:	Not applicable.
FLAMMABLE LIMITS -	
UPPER EXPLOSION LIMIT:	Not applicable.
LOWER EXPLOSION LIMIT:	Not applicable.
AUTO-IGNITION TEMPERATURE:	No data available.
SUITABLE EXTINGUISHING MEDIA:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
SPECIAL FIRE FIGHTING PROCEDURES:	Full-face self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.
UNUSUAL FIRE/EXPLOSION HAZARDS	None.

SECTION VI: Accidental Release Measures

Collect and return undamaged and uncontaminated material to container for reuse and reclamation. Place contaminated material in appropriately marked container for disposal. Refer to Section VIII of this MSDS for exposure control and personal protection. Refer to Section XIII of this MSDS for proper disposal methods.

SECTION VII: Handling and Storage

Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid formation of dust and aerosols. Store in cool dry place. Keep away from open flames, hot surfaces and sources of ignition.

SECTION VIII: Exposure Controls / Personal Protection

ENGINEERING MEASURES:	Use local exhaust ventilation over processing equipment. Where processing may release excessive dust or fumes, maintain respirable dust and fumes below control limits.
EYE / FACE PROTECTION:	Safety glasses with side shields.
GENERAL HYGIENE CONSIDERATIONS:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product.
PROTECTIVE CLOTHING:	Wear protective gloves and long sleeved shirt when handling hot polymers.
RESPIRATION PROTECTION:	Respirator use must be in accordance with OSHA Standard 29 CFR 1910.34.
EXPOSURE LIMIT(S):	There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION IX: Physical and Chemical Properties

FORM:	Solid	BOILING POINT (°F):	Not Applicable
APPEARANCE:	Amorphous Bulk	VAPOR PRESSURE (mm Hg,):	Not Applicable
* COLOR:	Various	VAPOR DENSITY (AIR=1):	Not Applicable
ODOR:	Not Determined	SOLUBILITY IN WATER:	Not Applicable
VOLATILE BY VOLUME, PERCENT:	Not Determined	EVAPORATION RATE (_____ = 1):	Not Applicable
* SPECIFIC GRAVITY (H_2O=1):	Various: 0.90 to 2.00	pH:	Not Applicable

NOTE (*): These data are dependent upon the specific R&S Compound and are provided with quality control data upon delivery.

SECTION X: Stability and Reactivity

GENERAL STABILITY CONSIDERATIONS:	Stable under recommended handling and storage conditions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon dioxide (CO)2, carbon monoxide, other hazardous materials, and smoke are all possible.
HAZARDOUS POLYMERIZATION:	Not anticipated under normal or recommended handling and storage conditions.
INCOMPATIBLE MATERIALS:	Strong acids and oxidizing agents.

SECTION XI: Toxicological Information

There are no known hazardous components above regulatory thresholds in R&S Compounds.

SECTION XII: Ecological Information

No specific ecological data are available for R&S Compounds. Please refer to Section VI for information regarding accidental releases and section XV for regulatory reporting.

SECTION XIII: Disposal Considerations

Where possible, recycling is preferred to disposal or incineration. Classification, transportation and disposal of R&S Compounds should be conducted in accordance with applicable federal, state/provincial and local regulations.

SECTION XIV: Transport Information

R&S Compounds are not subject to DOT regulations.

SECTION XV: Regulatory Information

OSHA STATUS:	There are no known hazardous components above regulatory thresholds in R&S Compounds. However, thermal processing and decomposition fumes from R&S Compounds may be hazardous as noted in Section III.
TSCA STATUS:	All components of R&S Compounds are listed on the TSCA inventory or are exempt.
CERCLA REPORTABLE QUANTITY:	Not applicable.
SARA TITLE III, SECTION 313:	
CALIFORNIA PROPOSITION 65:	Specific R&S Compounds may contain hydrocarbon oils with more than 0.1% aromatics, certain resins, metallic dithiocarbamates, and chlorine compounds which have been found to cause cancer in laboratory animals. R&S Compounds have not been evaluated as a whole for health effects. Information provided on health effects of R&S Compounds is based on the individual components of various compounds. In general, heating or processing R&S Compounds may result in product degradation or by-product formation creating additional hazards. See Section VIII and XI for additional details.

SECTION XVI: Other Information

The information and recommendations contained in this Safety Data Sheet have been compiled from sources believed to be reliable, accurate, and current. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release. No warranty, guarantee, quality specification or representation is made as to the correctness or sufficiency of the information, The user of R&S Compounds is responsible for determining the suitability of these materials for use in a specific purpose, to adopt all appropriate measures necessary to safely use the materials: either alone or in combination with other products, and determine their environmental regulatory compliance obligations under any applicable or state laws.

NFPA 704M RATING

Health	1
Flammability	1
Reactivity	0
Other	

0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

HMIS RATING

Health	1
Flammability	1
Physical Hazard	0

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
* = Chronic Health Hazard

HEXPOL COMPOUNDING

SAFETY DATA SHEET

1. Identification

Product identifier **50D NR 2**

Other means of identification

Product code EL30066400OS

Recommended use Not available.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name HEXPOL Compounding

Address 150 S. Connell Ave
Dyersburg, TN 38024
United States

Telephone SDS Contact 1-731-287-3516

Website www.hexpolcompounding.com

E-mail SDSREQUEST@HEXPOL.COM

Contact person Product Stewardship

Emergency phone number CHEMTREC 1-800-424-9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information 60.31% of the mixture consists of component(s) of unknown acute oral toxicity. 97.2% of the mixture consists of component(s) of unknown acute dermal toxicity.

Encapsulation in the rubber matrix generally precludes hazardous exposure. However, some vapors may be released during hot processing, and the fabricator must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure. Note that some rubber compounds have the potential to produce nitrosamine fumes during cure that may be carcinogenic.

Warning! May form combustible dust concentrations in air (during some types of processing, e.g., grinding)

3. Composition/information on ingredients

Mixtures

The manufacturer lists no ingredients as hazardous to health according to OSHA 29 CFR 1910.1200.

4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Direct contact with eyes may cause temporary irritation.
Indication of immediate medical attention and special treatment needed	Treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted other than possible dust formation.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Store in original container. Avoid smoking, flares, sparks, or flames in immediate area. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	PEL	5 mg/m3	Mist.
		2000 mg/m3	
		500 ppm	

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	TWA	5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	Ceiling	1800 mg/m3	
	STEL	10 mg/m3	Mist.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls If dust is produced during processing, it is recommended that all dust control equipment such as local exhaust ventilation and any material transport system involved in handling such dust contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Use only appropriately classified electrical equipment and powered industrial trucks.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear suitable protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Color Black

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point Not available.

Initial boiling point and boiling range Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Specific gravity	1.13

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Contact with incompatible materials. Minimize dust generation and accumulation.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	During processing, small amounts of potentially irritating hydrocarbon or other complex organic by-products may be released. CAUTION: For fluoroelastomers, take care to keep the material below 200C due to the potential for generation of highly corrosive hydrogen fluoride. Combustion may produce carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx) and sulfur (SOx), hydrocarbon vapors, and depending on formula, possible halogenated acid gases.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.

Information on toxicological effects

Acute toxicity	Not known.
Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
Respiratory or skin sensitization	
Respiratory sensitization	Based on available data, the classification criteria are not met.
Skin sensitization	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Not applicable. See Supplemental Information in Section 2.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. Regulatory information

US federal regulations

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Zinc oxide (CAS 1314-13-2) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 313 (TRI reporting)

Chemical name	CAS number/Category	% by wt.
ZINC COMPOUNDS	N982	1 - < 3

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 03-23-2020

Version # 01

References If dust is generated during processing, refer to:

(1) NFPA 654, "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Solids"
(2) OSHA 3371-08 2009, "Hazard Communication Guidance for Combustible Dusts"

Disclaimer HEXPOL Compounding cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

RUBBER PROCESSING CHART

DATE WEEK OF		DAY	CUSTOMER	CYCLE TIME (HRS)	WT BEFORE	WT AFTER	TOTAL MTL REMOVED	SULFUR CONTENT (%) BY WT
		MON					0	0
		TUE					0	0
	2	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	9	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
MAR	16	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	23	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	30	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	30	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	6	WED					0	0
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
APR	13	WED	Conn Rubber	9	585	507	78	1.404
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	20	WED					0	0
		THU					0	0
		FRI					0	0
		MON	Boge	8	2473	2417	56	1.008
		TUE					0	0
	27	WED	Boge	5	633	604	29	0.522
		THU					0	0
		FRI					0	0
		MON					0	0
		TUE					0	0
	4	WED					0	0

		THU					0	0
		FRI					0	0
	11	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
MAY		FRI					0	0
	18	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	25	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	1	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	8	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	15	MON					0	0
		TUE					0	0
JUN		WED					0	0
		THU					0	0
		FRI					0	0
	22	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	29	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	6	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	13	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
JULY		FRI					0	0
	20	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	27	MON					0	0
		TUE					0	0
		WED					0	0

		THU					0	0
		FRI					0	0
AUG	3	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	10	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	17	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0
	24	MON					0	0
		TUE					0	0
		WED					0	0
		THU					0	0
		FRI					0	0