



INDIANA ENVIRONMENTAL STEWARDSHIP PROGRAM ANNUAL PERFORMANCE REPORT

State Form 53475 (11-07)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ENVIRONMENTAL STEWARDSHIP PROGRAM

Indiana Department of Environmental Management
Office of Pollution Prevention and Technical Assistance
100 North Senate Avenue IGCS W041
Indianapolis, IN 46204-2251
Telephone: (800) 988-7901
FAX: (317) 233-5627
E-mail: esp@idem.IN.gov
www.in.gov/idem/prevention/esp

When to use this annual report form...

STOP! Is your facility a member of the U.S. Environmental Protection Agency's National Environmental Performance Track and Indiana Environmental Stewardship Program? If so, please use the U.S. EPA National Environmental Performance Track Annual Performance Report form available at <http://www.epa.gov/performance/track/program/report.htm>. The U.S. EPA will notify IDEM after receiving your annual performance report.

GO! Please use this annual report form if you are only a member of the Indiana Environmental Stewardship Program and not a member of the National Environmental Performance Track. Your Annual Performance Report should be reviewed and signed by a senior manager at your facility prior to submittal. Once signed, fax, mail, or e-mail the report to IDEM. If you have any questions, please contact the ESP Program Manager at 800-988-7901.

The Indiana Environmental Stewardship Program (ESP) Annual Performance Report should demonstrate progress toward objectives and targets AND certify ESP requirements continue to be achieved. The Annual Performance Report should cover the twelve (12) month calendar year and include the status of projects committed to in your facility's original ESP application, results of completed projects, and assurance that an annual internal environmental management system audit was conducted by your facility. Indiana ESP facilities must submit an Annual Performance Report by April 1st of every year, for each calendar year in which the entity has been a member for at least three (3) full months.

Please do not include any confidential business information in your Annual Performance Report. Public access laws require IDEM to make the Annual Performance Report publicly available, which may include posting all portions of your report on the Indiana ESP Web site.

SECTION A

FACILITY INFORMATION

Name of Facility

Toyota Industrial Equipment Mfg., Inc.

Name of Parent Company (If applicable)

Street Address (number and street)

5555 Inwood Drive

City/State/ZIP Code

Columbus, In 47202-2487

Facility/Company Web site

CONTACT INFORMATION

Contact Name (Mr./Mrs./Ms./Dr.)

Ron allen

Title

Environmental Engineer

Telephone number

812-342-8606

FAX number

812-342-0064

E-mail address

ron.allen@tiem.toyota-industries.com

Mailing Address (if different from facility address)

PO Box 2487

City/State/ZIP Code

Columbus, IN 47202-2487

Reporting Period Dates

2007

If this is your third Annual Performance Report, do you wish to renew your Indiana Environmental Stewardship Program membership?

☐ Yes---If yes, please complete all sections of this annual report.

☐ No---If no, you can skip Section D of this annual report.

CHANGE IN INFORMATION

In your ESP application and, perhaps, in previous annual performance reports, you described what your facility does or makes. Have there been any changes or additions to your facility's list of products or activities? If so, please list them in the space below.

☐ Yes ☒ No

SECTION B
ENVIRONMENTAL MANAGEMENT SYSTEM ASSESSMENT
Why do we need this information?

IDEM needs information on the performance and assessment activities of your Environmental Management System (EMS).

What do you need to do?

Please summarize your facility's EMS assessments. Attach additional sheets as necessary.

<p>1. Is your facility currently registered to a recognized third-party EMS standard?</p> <p><input checked="" type="checkbox"/> Yes</p> <p>a. If yes, when was an EMS audit or other assessment last conducted by an independent third party at your facility? Please provide the <i>type</i> (e.g., ISO 14001 certification), <i>scope</i>, and <i>month</i> of the last assessment.</p> <p><input type="checkbox"/> No</p> <p>b. If no, when was an internal or corporate EMS audit last conducted at your facility? Please provide the <i>scope</i> and <i>month</i> of the last assessment.</p>	<p>Year: 2007</p> <p>Type: ISO 14001 Certification Periodic Audit</p> <p>Scope: All Aspects</p> <p>Month: November</p> <p>Year:</p> <p>Scope:</p> <p>Month:</p>	
<p>2. When did your facility last conduct an internal or corporate compliance audit? Please provide the <i>scope</i> and <i>month(s)</i> of each audit, and indicate <i>who</i> conducted the audit(s) (e.g., facility staff, corporate groups, third party). Do not include audits, inspections, or site visits by regulatory organizations.</p>	<p>Year: 2008</p> <p>Scope: All Aspects</p> <p>Month(s): February</p> <p>Who: Internal Audit Team</p>	
<p>3. (Optional) Please describe any other audits that were conducted at your facility.</p>	<p>IDEM ESP Membership Audit / CCU Annual Inspection</p>	
<p>4. Has your facility corrected all instances of potential non-compliance and EMS non-conformance identified during your audits and other assessments?</p> <p><input checked="" type="checkbox"/> Yes</p> <p>a. If yes, briefly summarize corrective actions taken and other improvements made as a result of your EMS assessment(s) or compliance audit(s).</p> <p><input type="checkbox"/> No</p> <p>b. If no, please explain your plans to correct these instances.</p> <p><input type="checkbox"/> No such instances identified.</p>	<p>External Audit - 4.5.4 Control of Records - OCP Proficiency charts in some case were not current in all departments. Monthly updating of Proficiency charts are now required.</p>	
<p>5. Explain the emergencies experienced within the facility during the past year. Were the applicable emergency and contingency plans detailed in the EMS effective? What changes, if any, have been made to your facility's emergency or contingency plans?</p>	<p>Fire Alarms/Severe Weather - All emergency action plans were met. ISO 14001 External Auditor was present during a fire alarm and stated that TIEM's action plan worked extremely well as documented.</p>	
<p>6. When was the last Senior Management review of your EMS completed?</p>	<p>Month/Year: 12-13-2007</p> <p>Who headed the review? Name and Title: Ron Allen -ISO 14001 Management Representative</p>	
<p>7. When did your facility last conduct a systematic identification or review of your environmental aspects?</p>	<p>Month/Year: 5-2007</p>	
<p>10. (Optional) Please provide a narrative summary of progress made toward EMS objectives and targets <u>other than those reported as an Environmental Performance Initiative in the following section</u>. You may limit the summary to environmental aspects that are <i>significant</i> and towards which <i>progress</i> has been made during the last calendar year. Attach additional sheets as necessary.</p>	<p>Environmental Aspect</p>	<p>Progress Made This Year (e.g., quantitative or qualitative improvements, activities conducted)</p>
	<p>Weld Fume</p>	<p>(9) areas tested with above ACIGH levels - (6) areas were reduced to below ACIGH levels.</p>
	<p>Nosie Reduction</p>	<p>50% of the facility is currently below the OSHA hearing protection requirements.</p>
	<p>Supplier Certification</p>	<p>Currently 98% of TIER I suppliers and 96% of TIER II suppliers are ISO 14001 certified or have a equivalent EMS.</p>

SECTION C**ENVIRONMENTAL IMPROVEMENT INITIATIVE RESULTS****Why do we need this information?**

Facilities need to share the results of the environmental improvement initiative that was pursued during the reporting period.

What do you need to do?

Use the following table to summarize your facility's environmental performance as compared to your ESP environmental improvement initiative.

Category: **Air Emissions**

Aspect: **VOC'S (Specific)**

Specific Information on Aspect (optional):

	Baseline	Progress during year 2007	Environmental Improvement Initiative Goal	Cost Savings (if applicable)
Actual Quantity (per year)	15190.8	8558	100%	None
Measurement Unit	lbs VOC	lbs VOC	44%	
Normalized Quantity (per year)	lbs VOC	lbs VOC		
Basis for your Normalizing Factor (e.g., gallons of paint produced)	lbs VOC	lbs VOC		

Briefly describe how you achieved improvements for this aspect or, if relevant, any circumstances that delayed progress.

In an attempt to reformulate the solvent (TEM-112) by removing T-Butyl Acetate (25% by weight) and Methyl Propyl Ketone (25% by weight) with a non-VOC chemical it was found that currently there is no product available that would perform to the required standards to meeting cleaning requirements. However, TIEM was able to reformulate a new solvent (TEM-100) which is 66% Acetone and 33% Methyl Amyl Ketone by weight. This reformulation reduce VOC content by 33%. TIEM will continue researching for non-VOC solvents.

Please list any state, EPA, or other partnership programs to which you are reporting this data (e.g., Energy Star, Project XL).

None

(Optional) If your facility has experienced continued results for environmental improvement initiatives pursued in past years of ESP membership, please share those results here.

SECTION D**ENVIRONMENTAL IMPROVEMENT INITIATIVES****Why do we need this information?**

Facilities need to demonstrate their commitment to improving environmental performance.

What do you need to do?

Refer to the Environmental Performance Table.

For ESP membership, you must identify three (3) environmental improvement initiatives for each 3-year membership term. One (1) initiative was identified in the application and the remaining will be identified each year in the annual report. Identify the new initiative that will begin this year by answering the following questions. Choose an indicator from the Environmental Performance Indicator Table to measure the identified environmental initiative. The Environmental Performance Indicator Table is provided with the ESP Application and is also available at <http://www.in.gov/idem/prevention/esp/table.doc>. The indicator you select for your initiative should be related to the objectives and targets in your EMS. Where possible, indicators should also be identified as having a significant environmental impact in your EMS. No more than two of your indicators can be from the same environmental category during the 3-year term. If you are not sure how your objectives and targets fit into the indicators from the Environmental Performance Indicator Table or whether your indicators are significant, call IDEM at 800-988-7901.

Please complete the following questions according to the environmental indicator you selected from the Environmental Performance Indicator Table. Additional information is required for air, hazardous waste, solid waste, and energy indicators as requested in Appendix 1.

1a What category have you selected from the Environmental Performance Table? (If the category is Energy Use, Waste, or Air Emissions for Total GHGs, please turn to Appendix 1 to complete additional questions pertaining to the category you have selected.) **Non-Production Output**

1b What indicator have you selected from the Environmental Performance Table? **Total GHG**

1c All measurements should represent the performance level for the indicator across the entire facility. For many indicators, you may choose to focus your initiative on a specific subset of the indicator (e.g., a specific material, process, VOC, group of toxic air emissions, or particular waste component). Does your initiative include everything covered by the indicator (e.g., all VOCs, all non-hazardous waste), or a specific process, substance, or component (e.g., ethane, cardboard)?

- ☐ All
☒ Specific

If your initiative is specific to a substance or component, please provide additional detail on your indicator (e.g., specific chemical to be reduced, specific waste component). **Tons of CO2 produced - overall results.**

1d What activities or process changes do you plan to undertake at your facility to accomplish your initiative (e.g., technology changes in a particular process line, employee training)? **Technology changes, energy reduction programs, improved maintenance procedures and**

Associate training.

2a Does this initiative address a significant aspect in your EMS?

- ☒ Yes
☐ No

2b If no, please explain why you believe this indicator should be included as an environmental improvement initiative.

Stop! If the category listed in Question 1a is Energy Use, Waste, or Air Emissions for Total GHGs, please skip Questions 3a – 3b below and turn to Appendix 1 to complete the questions pertaining to the category you listed. After completing Appendix 1, return to question 4 and complete the remaining questions regarding your facility's environmental improvement initiative.

3a What units are you using to quantify this indicator?

(Please refer to the Environmental Performance Indicator Table for the acceptable units for each indicator.)

3b List the baseline annual quantity of the indicator and the annual quantity you are committing to achieve by the future year.

Baseline quantity	Year
Future year quantity (not including production)	Year

4 Does the quantity presented in the future quantity column represent an absolute goal or a normalized goal?

- ☐ Normalized goal (i.e., indexed to level of business in baseline year)
☒ Absolute goal (i.e., demonstrates improvement even if production increases)

5 Whether your goal is absolute or normalized, you will need to provide normalizing factors and normalized quantities in your annual performance reports.

Please briefly describe your basis for normalizing. Examples of potential normalizing basis include: gallons of paint produced, square feet of circuit boards sold, number of patients seen, dollars of sales adjusted for inflation, or number of employees (for R&D and administrative sites only).

Amount of KW and D-Therm purchased.

6a Are you subject to Federal, State, tribal, or local regulatory requirements for this indicator?

- ☐ Yes
☒ No

6b If yes, explain how your initiative exceeds regulatory requirements.

SECTION E

PUBLIC OUTREACH AND PERFORMANCE REPORTING

Why do we need this information?

IDEM needs to know how environmental information was shared with the public.

What do you need to do?

Describe how the facility has shared and plans to share environmental information.

Please briefly describe the activities that your facility conducted during this reporting period to interact with the community on environmental issues and to report publicly on its environmental performance. Feel free, but not obligated, to attach supporting materials (e.g., meeting agendas, public announcements).

Contributed funding to the Bartholomew County Solid Waste Management District to support recycling efforts for children's education project, and provided funding for newspaper and radio advertisements for Earth Day, 4-H Fair and Hope Heritage Days. Sponsor the quarterly meeting of P2 at the TIEM facility, along with being a speaker and panel member in a local environment groups monthly member meeting. TIEM is currently a member of the City of Columbus - Bartholomew County Recycling committee.

Please indicate which of the following methods your facility plans to use to make its ESP Annual Performance Report available to the public. Please check as many as appropriate.

- ☐ Website (<http://www.>)
☒ Open House
☒ Meetings
☒ Press Releases
☐ Community Advisory Panel
☐ Other

SECTION F

ADDITIONAL INFORMATION

Why do we need this information?

This information will help IDEM to effectively manage the Environmental Stewardship Program.

What do you need to do?

Answer the questions as completely as possible.

1. In addition to ESP, please list environmental awards received or voluntary programs participated in during the past twelve months (include information about each particular program).

Programs -

- Heads UP Fondation - This organization work with children and families with craniofacial anomalies.
 - Indiana University-School of Medicine - Riley Childrens Hospital. "Heads UP Cartridge Collection Program". Works in conjunction with the Heads UP Foundation
- See Section E for additional programs.

2. Has your facility taken advantage of any ESP incentives? If so, please describe the implementation process and list additional benefits IDEM should consider.

Yes - Permit modifications, reporting requirements

3. If your facility was not registered to the ISO 14001 standard prior to becoming an ESP member, has ESP helped you to pursue registration? If so, how has ESP been instrumental in achieving registration?
4. Explain the measured or perceived results from receiving, documenting, and responding to external communication.
5. How have community residents and businesses reacted to your facility participating in the Indiana Environmental Stewardship Program?
Participation in the ESP has been seen by potential and current customers as a tangible commitment to being a leader in environmental stewardship. This has also led TIEM to be recognized as a community leader in environmental stewardship and TIEM has been asked by the Mayor of Columbus to participate as a member of his Bartholomew County Recycling Committee.
6. According to the measurement program developed and implemented by your facility to measure Environmental Management System success, is your facility's EMS successful? Why or why not? If not, what changes will be made to ensure continual environmental improvement and future EMS success?

Yes, TIEM EMS has been effective in not only reducing both hazardous and non-hazardous waste disposal and cost, it has also been helpful in pursuing other avenues for energy reduction, conservation of natural resources and cost reduction in waste management. The EMS is also provide means to support the community in children's and community environment activities, and increase donation to children's charities by using the recycling proceeds to support these charities.

CERTIFICATION AND PLEDGE

On behalf of **Toyota Industrial Equipment Manufacturing, Inc.** (name of facility),

I certify that the information contained in this Annual Performance Report and attachments is accurate to the best of my knowledge and that this facility is, to the best of my knowledge and based on reasonable inquiry, currently in compliance with all applicable federal, state, and local environmental requirements, or has a corrective action program in place to attain compliance.

We, **TIEM Management and Associates**, commit to maintaining the principles and goals outlined in our Environmental Management System for our facility's Indiana Environmental Stewardship Program status. We agree to strive for full compliance with all regulations promulgated by the U.S. EPA, state, or local jurisdictions. We agree to promote the Indiana Environmental Stewardship Program and to share our success stories with other facilities. We understand that the Annual Performance Report must be submitted to IDEM by April 1st of each year and that we must reapply to the Indiana Environmental Stewardship Program every three years.

I understand that the information provided in this Annual Performance Report will be public record. I am the senior facility manager or authorized facility signatory, and fully authorized to execute this statement on behalf of the corporation or other legal entity whose facility is submitting this Annual Performance Report.

Signature Marv Johnson	Title Sr. Vice President, Engineering, Quality Assurance & Administration	Date (month, day, year)
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Please mail, fax, or e-mail your completed Environmental Stewardship Program Annual Performance Report to:

IDEM-OPPTA
ESP Program Manager
MC 64-00 IGCS W041
100 North Senate Avenue
Indianapolis, IN 46204-2251

FAX: 317-233-5627
E-mail: esp@idem.IN.gov

Additional questions for environmental improvement initiatives for the following categories/indicators:

Energy Use - Non-Transportation

In the table below, please enter the amount of energy that you currently use and that you intend to use in your future reporting year. Break the energy use down by fuel type. Please note that you need only complete those lines that are relevant to your facility. If all of your energy is purchased from a local electricity generator, you may only need to complete the first line. If the facility uses natural gas, please be sure to complete the appropriate line (natural gas is typically combusted on site so it is listed in the "onsite" section).

Please note that this table categorizes sources of energy according to where the energy is generated.

3a Is the goal of your energy use commitment to:

- ☒ Reduce total energy use
☐ Invest in renewable energy sources
☐ Combination of both strategies

3b How much energy of each type does your facility use?

		Baseline Year 2007	Future Year 2008	Units
Energy Generated Off-Site	Electricity	17,559,733	17,032,941	KWH
	Steam			
	Total Energy Generated Off-Site			
Sources of Energy Generated On-Site	Coal			
	Natural Gas	86,242	83,655	DTHERM
	Crude Oil			
	Fuel Oil			
	Diesel			
	Propane / LPG			
	Gasoline			
	Hydrogen Powered Fuel Cells			
	Natural Gas / Methane Powered Fuel Cells			
	Biomass			
	Solar			
	Wind			
	Landfill Gas			
	Geothermal			
	Hydroelectric			
	Tire Derived Fuel			
	Other Fuel or Source Specify: _____			
Total Energy Generated On-Site				
Total Renewable Energy Use				
Total Non-Renewable Energy Use				
Total Energy Use				
Metric Tons of CO2 Equivalents		20,751	20,128	MTCO2E
Metric Tons of CO2 Equivalents				
Offset Through Purchases of Electricity from Renewable Off-Site Sources				
Net Metric Tons of CO2 Equivalents				

Waste - Non-Hazardous Waste Generation

In the table below, please enter your facility's amount of non-hazardous waste, broken down by waste management method. Please enter both the amounts you manage currently and that you intend to manage in your future reporting year. "Waste" is defined as all materials sent off-site that are neither product nor product packaging.

3a Is the goal of your non-hazardous waste commitment to:

- ☐ Reduce non-hazardous waste
☐ Improve waste management methods
☐ Combination of both strategies

3b How much of your waste is handled using each management method?

Method of Waste Managed	Baseline Year 20____	Future Year 20____	Units
Landfill			
Incineration			
Reused/recycled off-site			
Other management - Specify: _____			
Total Non-Hazardous Waste			

Waste - Hazardous Waste Generation

In the table below, please enter your facility's amount of hazardous waste, broken down by waste management method. Please enter both the amounts that you manage currently and that you intend to manage in your future reporting year. Include all hazardous waste that is treated on-site or sent off-site.

3a Is the goal of your hazardous waste commitment to:

- ☐ Reduce hazardous waste
☐ Improve waste management methods
☐ Combination of both strategies

3b How much of your hazardous waste is handled using each management method?

Method of Waste Managed	Baseline Year 20____	Future Year 20____	Units
Landfill			
Incineration			
Reused/recycled off-site			
Treated on-site			
Other management Specify: _____			
Total Hazardous Waste			

Air Emissions – Total GHGs

3a Is the goal of your Total GHGs commitment to:

- ☒ Reduce energy use
☐ Reduce process-related emissions
☐ Combination of both strategies

3b How much greenhouse gas does your facility emit from each source?

Source		Baseline Year 2007	Future Year 2008	Units
Direct Emissions	Stationary Combustion			
	Mobile Sources			
	Refrigeration/AC Equipment Use			
	Process/Fugitive Specify Source: _____			
	Process/Fugitive Specify Source: _____			
	Process/Fugitive Specify Source: _____			
	Total Direct Emissions Process/Fugitive			
Indirect Emissions	Purchased Electricity	17,559,733	17,032,941	KWH
	Purchased Steam			
	Purchased Hot Water			
	Total Indirect Emissions	17,559,733	17,032,941	KWH
Optional Indirect Emissions	Other Specify Source: Natural Gas	86,242	83,655	D THERM
	Other Specify Source: _____			
	Other Specify Source: _____			
	Total Optional Indirect Emissions			
Offsets	Offsets Specify Source: _____			
	Offsets Specify Source: _____			
	Offsets Specify Source: _____			
	Total Reductions from Offsets			
	Total Emissions Less Offsets			
Supplemental Information	Total CFC			
	Total HCFC			
	Total Stationary Combustion – Biomass CO2			
	Total Mobile Sources – Biomass CO2			
	Electricity trading transactions- Electricity Purchase for Resale			

Programs -

- Heads UP Fondation - This organization work with children and families with craniofacial anomalies.

- Indiana University-School of Medicine - Riley Childrens Hospital. "Heads UP Cartridge Collection Program". Works in conjunction with the Heads UP Foundation
See Section E for additional programs.

2. Has your facility taken advantage of any ESP incentives? If so, please describe the implementation process and list additional benefits IDEM should consider.

Yes - Permit modifications, reporting requirements

3. If your facility was not registered to the ISO 14001 standard prior to becoming an ESP member, has ESP helped you to pursue registration? If so, how has ESP been instrumental in achieving registration?

4. Explain the measured or perceived results from receiving, documenting, and responding to external communication.

5. How have community residents and businesses reacted to your facility participating in the Indiana Environmental Stewardship Program?

Participation in the ESP has been seen by potential and current customers as a tangible commitment to being a leader in environmental stewardship. This has also led TIEM to be recognized as a community leader in environmental stewardship and TIEM has been asked by the Mayor of Columbus to participate as a member of his Bartholomew County Recycling Committee.

6. According to the measurement program developed and implemented by your facility to measure Environmental Management System success, is your facility's EMS successful? Why or why not? If not, what changes will be made to ensure continual environmental improvement and future EMS success?

Yes, TIEM EMS has been effective in not only reducing both hazardous and non-hazardous waste disposal and cost, it has also been helpful in pursuing other avenues for energy reduction, conservation of natural resources and cost reduction in waste management. The EMS is also provide means to support the community in children's and community environment activities, and increase donation to children's charities by using the recycling proceeds to support these charities.

CERTIFICATION AND PLEDGE

On behalf of **Toyota Industrial Equipment Manufacturing, Inc.** (name of facility),

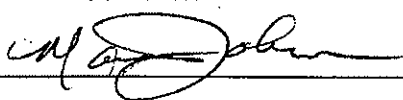
I certify that the information contained in this Annual Performance Report and attachments is accurate to the best of my knowledge and that this facility is, to the best of my knowledge and based on reasonable inquiry, currently in compliance with all applicable federal, state, and local environmental requirements, or has a corrective action program in place to attain compliance.

We, **TIEM Management and Associates**, commit to maintaining the principles and goals outlined in our Environmental Management System for our facility's Indiana Environmental Stewardship Program status. We agree to strive for full compliance with all regulations promulgated by the U.S. EPA, state, or local jurisdictions. We agree to promote the Indiana Environmental Stewardship Program and to share our success stories with other facilities. We understand that the Annual Performance Report must be submitted to IDEM by April 1st of each year and that we must reapply to the Indiana Environmental Stewardship Program every three years.

I understand that the information provided in this Annual Performance Report will be public record. I am the senior facility manager or authorized facility signatory, and fully authorized to execute this statement on behalf of the corporation or other legal entity whose facility is submitting this Annual Performance Report.

Signature

Marv Johnson



Title

**Sr. Vice President, Engineering,
Quality Assurance &
Administration**

Date (month, day, year)

3/31/08

Please mail, fax, or e-mail your completed Environmental Stewardship Program Annual Performance Report to:

**IDEM-OPPTA
ESP Program Manager
MC 64-00 IGCS W041
100 North Senate Avenue
Indianapolis, IN 46204-2251**

**FAX: 317-233-5627
E-mail: esp@idem.in.gov**

31 March 2008

To: Environmental Stewardship Program

Toyota Industrial Equipment Manufacturing 2007 ESP Improvement Initiative

Project: Air Emissions, VOC (Specific): To reduce by 100% all VOC content in the solvent (TEM-112).

In an attempt to reformulate the solvent (TEM-112) by removing T-Butyl Acetate (25% by weight) and Methyl Propyl Ketone (25% by weight) with a non-VOC chemical, it was found that currently there is no product available that would perform to the required standards, to meet cleaning of the paint lines, to prevent the product from hardening in the lines during idle times.

The only alternative to remove 100% of the VOC was to use 100% Acetone, which has a flash point of 104 degrees. However, due to the use of this product in close proximity to the drying ovens which maintain temperature at 225 degrees, this could result in creating an explosive atmosphere.

A new solvent, TEM-100 which contained Methyl Amyl Ketone (33% by weight), a lower VOC containing chemical, and Acetone (66% by weight) was the best alternative at the present time.

Through this reformulation, TIEM was able to achieve a 44% reduction of VOC'S in the solvent, and it has improved scouring properties over the original formulation reducing the amount of solvent used.

TIEM will continue researching the reduction of VOC in its current solvent as new alternatives and products become available.

Respectfully,



Marv Johnson
Sr. VP, Engineering, Quality Assurance and Administration