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HEALTH & SAFETY

guardian

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Committed to promoting health and safety awareness to industry since 1915

too hot to handle?

Hot Work

Heat. It can kill.

If your job entails vigorous activity in a hot climate – indoors or out – heat stress can be a major occupational hazard. You could be susceptible to heat stroke, heat exhaustion, heat cramps, heat collapse, heat rashes, heat fatigue – and in some cases – death.

When your body temperature rises even a few degrees above normal (about 37 C or 98.6 F), you can experience muscle cramps, become weak, disoriented, and dangerously ill unless you can help your body to cool down. If your body temperature rises above 41 C or 105 F, your condition can be fatal. Increased body temperature and physical discomfort can also promote irritability, anger, and other emotional states that can cause workers to bypass safety procedures or to lose concentration while performing hazardous job functions.

Fortunately, the human body is pretty efficient at keeping our body temperatures constant. In order to maintain our body temperatures, the body must release the heat. This is carried out through blood circulation and sweating. As the sweat evaporates it cools the skin by eliminating heat from the body. In environments with high humidities this process is hindered because the evaporative process is decreased and it is more difficult for the body to cool itself.

heat stress

The stress that heat puts on the body can cause disorders ranging from heat cramps to heat stroke. This occurs when heat causes the body's cooling system to fail, so that the core body temperature rises to critical levels of 41 C or more. Heat stroke is often fatal, even when the patient is given aggressive treatment. It can occur in young, healthy people engaged in moderate to heavy physical activity as well as in older people. Symptoms of heat stroke include: confusion, irrational behavior, hot, dry skin (usually with a lack of sweating), loss of consciousness and collapse. Co-workers who do not know about heat stroke and its symptoms may think the victim is upset, intoxicated or just 'acting strangely' and fail to seek help.

Heat stroke and other heat-related disorders are more likely to occur among workers who have not been acclimatized over at least two weeks. In Ontario, hot weather often arrives too quickly for workers to truly acclimatize.

People vary in their reaction to heat, and it is difficult to predict which workers will be seriously affected or when a worker will be affected. Factors that make a worker more likely to

cont'd pg. 3

insidethisissue

2 Hot.com?
7 Staff Changes @ PPHSA

Free Heat Stress Poster!

about HEALTH & SAFETY Guardian

Health and Safety Guardian is published quarterly by the Pulp and Paper Health and Safety Association (PPHSA) to provide health and safety information to managers and workers in the pulp, paper and related industries of Ontario. PPHSA is funded through, and functions under, the umbrella of the Workplace Safety and Insurance Board (WSIB).

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Hot.com?



http://www

Heat Stress Calculator on the Web

www.ohcow.on.ca or link via www.pphsa.on.ca

The web site of the Occupational Health Clinics for Ontario Workers (OHCOW) provides a calculator to help employers decide what to do for their workers in hot weather. You input the temperature and humidity, and the calculator gives such responses as "no discomfort", "provide water", "reduce activity – 50% work", etc.

The calculator is based on a correlation with the current American Conference of Governmental Hygienists (ACGIH) Heat Stress and Strain Threshold Limit Values. The correlation is based on unacclimatized workers doing moderate work (care should be taken when assigning workload categories since age, weight and gender also need to be taken into account). This correlation also only applies to workers wearing light summer clothing – those wearing coveralls, heavy protective clothing, impervious suits, etc. need to be evaluated according to the TLV.

The correlation takes in a very slight amount of radiant heat, however it may not be protective enough for workers with significant radiant heat loads (full sun outdoors, working beside an oven, molten iron, etc.).

This Humidex-based Heat Response Plan is not appropriate for unacclimatized workers in the heavy or very heavy workload categories. Special considerations also need to be made for those with medical conditions and/or those taking medications that will render them more susceptible to heat strain. Measurements should be taken in the workplace in representative areas at least hourly when conditions are of concern.

Regardless of what the temperature is... at any stage, never ignore symptoms even if measurements meet standards.

Did you know? The OHS Act & Regulations do not specify in any detail what companies are required to do.

Table 1: Examples of Permissible Heat Exposure Thresholds

Work-Rest Regimen	Light Work Load	Moderate Work Load
Continuous Work	30 C / 86 F	26.7 C / 80 F
75% Work - 25% Rest, Each Hr.	30.6 C / 87 F	28 C / 82 F
50% Work - 50% Rest, Each Hr.	31.4 C / 89 F	29.4 C / 85 F
25% Work - 75% Rest, Each Hr.	32.2 C / 90 F	31.1 C / 88 F

As work load increases, the heat stress impact on an unacclimatized worker is exacerbated. At a moderate level of work, the permissible heat exposure TLV should be reduced by 1.3 C (2.4 F) for each 1.1 C (2.0 F) increase in the TLV.

heat stress cont'd

develop heat stroke or other heat stress disorders when working in hot conditions include: age, weight, physical fitness, degree of acclimatization, metabolism, decreased fluid intake, exertion, consumption of alcohol and/or drugs before or during work and various medical conditions – including high blood pressure.

the Ministry of Labour suggests

Management and the Joint Health and Safety Committee can reduce heat stress in the following ways:

- Control the heat at the source through the use of insulating and reflective barriers (insulate furnace walls)
- Exhaust hot air and steam produced by specific operations
- Reduce the temperature and humidity through air cooling and provide air-conditioned rest areas
- Increase air movement if temperature is less than 35 C (fans)
- Reduce physical demands of work tasks through mechanical assistance (hoists, lift-tables, etc.)
- Health and safety committees should assess the demands of all jobs and have monitoring and control strategies in place for hot days
- Increase the frequency and length of rest breaks
- Schedule hot jobs to cooler times of the day
- Provide cool drinking water near workers and remind them to drink a cup every 20 minutes or so
- Workers should salt their food well, particularly while they are acclimatizing to a hot job (workers on a low-salt diet should check with their doctors first)
- Assign additional workers or slow down work pace
- Make sure everyone is properly acclimatized
- Train workers to recognize the signs and symptoms of heat stress – and start a 'buddy system' since people are not likely to notice their own symptoms
- During summer, employers should either allow workers to follow a proper schedule of work and rest or reduce their activity level. It is recommended that workers follow the work-rest regimen in Table 1 (below). In calculating Wet Bulb Globe Temperature Threshold Limit Values; the equations given in the Threshold Limit Values for Chemical Substances and Physical Agents should be used
- Encourage workers to wear clothing (including head-cover if working outdoors) that is loose-fitting, tightly woven and light coloured in order to reflect heat rather than absorb it
- Encourage workers not to consume excessive alcohol in the 24 hours before working in a hot environment
- Outdoor workers should also know about the hazards of Ultra Violet (UV) radiation

If you have questions about heat stress or how to measure it, call your Pulp and Paper Health and Safety Association Consultant/Trainer or a Ministry of Labour (MOL) office. For more technical information, ask for a MOL Hygienist.

Case Study:

Last August a Barrie bakery worker died of heat stroke. According to Environment Canada the outdoor temperature was 33.4 C and the humidity was 30%, so the outdoor humidex was 36 C and the outdoor WBGT was 24.8 C. If the temperature in the bakery was estimated to be 52 C – if the humidity inside was 10%, then the humidex would have been 54 C for the workplace (22 C WBGT).

required to do for their employees when it's hot, indoors or out.

Threshold Limit Values by WBGT

Work Load	Heavy Work Load
F	• 25 C / 77 F
	• 25.9 C / 78 F
	• 27.9 C / 82 F
	• 30 C / 86 F

acerbated. For unacclimatized workers performing
ced by approximately 2.5 C. *source: MOL*

New from PPHSA...

- back care video
- back care poster
- safety meeting topic

& soon

- a half day training program

Watch Your Back

A training program and video on back care specifically for the pulp, paper and related industries! Call PPHSA for more information.



Heat stress

HEAT-RELATED DISORDERS

Type Severity Cause(s), Symptoms & Treatment

Heat Rash	Mild	Sweat on skin doesn't evaporate, Sweat glands plug, Inflammation begins Tiny, raised bumps appear, Prickly sensation is experienced Remove wet clothing, Wash and dry skin, Apply mild drying lotion
Heat Cramps	Moderate	Heavy sweating causes a drop in salt level in blood causing an electrolyte imbalance Painful spasms in muscles associated with work being performed is experienced Rest in a cool area, drink mildly-salted water or commercial electrolyte drink
Fainting	Moderate to Severe	Blood pools in dilated vessels and lower body, Lack of blood flow to head, Not acclimatized Unconsciousness and cold moist skin is experienced, Possible weak pulse Place patient in a cool area, Apply a cold compress, Seek medical attention
Heat Exhaustion	Moderate to Severe	Hard work is sustained in heat, Water and salt is lost in sweat and not replaced Heavy sweating, thirst, pale, cold moist skin, dizziness, weakness, nausea, and a rapid weak pulse may be experienced Place patient in a cool area, Administer mildly-salted water or commercial electrolyte drink, Apply a cold compress, Seek medical attention
Heat Stroke	Severe	Dehydration, Water and salt lost in sweat and not replaced, Body unable to cool itself High temperature, Lack of perspiration, Rapid pulse, headache, dizziness, disoriented and unconsciousness may be experienced Cool patient immediately, Call for an ambulance, Treat for shock, Monitor vital signs

www.pphsa.on.ca

Presentations Made at & after Conference



Class A Winners



Class B Winners



Class C Winners



Class D Winners



Sheetplant Winners



George Carruthers Winners

PPHSA Awards of Excellence for 2001:

Class 'A' Award	Bowater Canada Inc, Thunder Bay
Class 'B' Award	Domtar, St. Catharines
Class 'C' Award	Sonoco Canada Corp., Trenton
Class 'D' Award	Norampac Inc. Peterborough
Sheetplant Award	Rexdale Container Corp., Rexdale
George Carruthers Award	The Eastern Branch of PPHSA

congratulations!

Successes shared



Eastern Branch hosts Lift Truck Rodeo

Nine participants took part in this year's Lift Truck Rodeo, hosted at the Eastern Branch of the Pulp and Paper Health and Safety Association. The annual event, held in Cornwall this year, brought together lift truck operators from within the Eastern Branch as well as other branches of the PPHSA. Participants from Cornwall, Iroquois, Espanola and Trenton put their abilities to the test. The top three performers were (first place) Rob Lentir of Domtar, (second place) Darryl Casselman of Craig Packaging, and (third place) Darryl Casselman of Domtar in Cornwall. Congratulations to the participants and the organizers.

Staff Changes @ PPHSA

Two New
The Pulp and
Steve Hopson



Steve

Stephen Hopson Consultant/Trainer, Algonquin Branch

Before coming to the PPHSA, Steve worked at Kimberly Clark in Huntsville for 21 years in the tissue manufacturing department as a process operator and stock winder operator. Steve was selected as a designated certified worker representative of the mill and served as member and co-chair on the Joint Health and Safety Committee. Steve holds several certifications in occupational health and safety and emergency response.

PPHSA Events Calendar:

Shared, industry brought together



When approximately 200 delegates gathered in Sault Ste. Marie this Spring for Pulp and Paper Health and Safety Conference 2002, good things happened. Senior managers, safety supervisors, safety managers, superintendents, foremen, Joint Health and Safety Committee members, front line workers, Workplace Safety and Insurance Board and other government representatives – and a whole lot of others – shared health and safety success stories, learned new things, and built partnerships. According to your completed evaluation forms your attendance at this year's conference was very worthwhile. All sessions, speakers and workshops were well received.

A special thank you is extended to G-P Flakeboard in Sault Ste. Marie for their contributions to, and support of, the conference.

Planning for next year's conference in the nation's capitol is already underway. Pulp and Paper Health and Safety Conference 2002 will be held at the Westin in downtown Ottawa, May 13 - 15. We know we'll see Maurice Leblanc of Tembec, Spruce Falls there – he was the grand prize draw winner of the full delegate package complete with accommodation. We hope we'll see you too. Watch for details in the Spring issue of Guardian and on the PPHSA Web Site www.pphsa.on.ca.

PPHSA invites submissions or suggestions for papers, presentations and workshops for Pulp and Paper Health and Safety Conference 2003. For more information or to submit your idea, please contact: Rebecca MacDonald @ (705) 474-7233 ext. 244.

Rodeo

Hosted and organized by the PPHSA on June 25, the lift truck operators rodeo was a success. The PPHSA. Representatives showed their ability and control to the best of their ability. The winner of Domtar in Espanola, (third place) Alex Daye of Domtar and the organizers!



1st Place winner doing his circle check Rob Lentir from Domtar Espanola



The 2002 Participants Congratulations to everyone!

New Consultant/Trainers & One Internal Promotion

The Pulp and Paper Health and Safety Association is pleased to announce the appointment of Paul Andre to the new position of Manager, Field Services, and welcome Tom Hopson as the new Consultant/Trainer for the Algonquin Branch, as well as Dan Suess, the new Consultant/Trainer for Paul's old territory – the Central Branch.

Steve worked for 21 years in the Department as a binder relief. He was selected as the representative member and Health and Safety Officer. He holds several safety certificates in safety, and



Dan

Dan Suess Consultant/Trainer, Central Branch

Dan comes to us with a diverse background in Occupational Health and Safety within the chemical, manufacturing, packaging and distribution industries. During his 20-plus years with Petro-Canada, Dan held various positions including training instructor, special projects coordinator, senior environmental advisor and senior health and safety and security advisor. Dan has recently been consulting independently in the greater Toronto area.



Paul

Paul Andre Manager, Field Services

Paul has spent the past 10 years as a consultant and trainer with the Ontario Forestry Safe Workplace Association and the Pulp and Paper Health and Safety Association – most recently with the Central Branch. Paul is the creator and moderator of PPHSA's email discussion group 'Safetypaper'. He is a Canadian Registered Safety Professional and holds a certificate in Occupational Health and Safety from Ryerson University.

September
Annual Algonquin Branch Fall Meeting & Conference
September 24 & 25, 2002
Clarion Resort on Pinewood Park Drive in North Bay
Call Steve at (705) 788-3232 for details.

October
Central / Niagara Branch Conference
October 8, 2002
International Plaza Hotel on Dixon Rd. in Mississauga
Call Dan at (905) 275-6376 or Thom at (519) 756-9230 for details

Oct. / Nov.
ErgoTools Workshop
October 1 & 2, 2002 in Toronto
Best Western Carlton Place
November 25 & 26, 2002 in Thunder Bay
Valhalla Inn & Conference Centre
Call Jonathan at (705) 474-7233 for details

PPHSA's new **Health & Safety Toolbox** can make **improving your health & safety system** as **easy** as

Tool 1 Needs Assessment & Identification

This up front assessment and needs identification tool sets the framework to integrate your health and safety efforts into your existing management system. Through short one-on-one interviews, your PPHSA Consultant/Trainer will quickly be able to assess your current situation and provide direction to immediate priorities and opportunities for improvement within your existing programs.

Tool 2 Legislative Compliance Audit

Our Legislative Compliance Audit evaluates adherence to health and safety legislation under Ontario's Occupational Act and Regulations. Compliance to existing legislation must be in place for an organization to build and integrate health and safety into its daily activities. This audit includes the evaluation of over 30 elements tied specifically to legislation as well as a physical conditions inspection. Accompanying the final report is a detailed reference manual.

Tool 3 Health & Safety Systems Audit

Our Health & Safety Systems Audit is a comprehensive and unique evaluation system that moves beyond traditional audits to focus on leading indicators within your health and safety system – activities and conditions that exist in your workplace affecting the overall success of your health and safety record. To be successful in our health and safety outcomes, we need to know which activities and programs contribute to that success. This fresh approach sets this tool apart and ensures best practices applied by industry leaders are shared by all.

For more information on PPHSA's Health & Safety Toolbox, Needs Assessment and Identification, PPHSA's Legislative Compliance Audit, or PPHSA's Health & Safety Systems Audit, please contact your PPHSA Consultant/Trainer or call PPHSA headquarters at (705) 474-7233.



Health & Safety Toolbox

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