

IN ASSOCIATION WITH KNOWLEDGE & TECHNICAL PARTNERS



Healthy-Safe-Environment - HSE

HSE newsletter is an initiative to share information's & bring awareness to all on Health Safety & Environment



कर्मण्येवाधिकारस्ते मा फलेषु कदाचन।
मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि॥

**YOU HAVE THE RIGHT TO WORK, BUT NEVER TO ITS FRUITS.
LET NOT THE FRUITS OF ACTION BE YOUR MOTIVE,
NOR LET YOUR ATTACHMENT BE THE CAUSE OF INACTION.**

कर्म करना तो तुम्हारा अधिकार है, लेकिन उसके फल पर कभी नहीं।
कर्म को फल की इच्छा से कभी मत करो, तथा तेरा कर्म ना करने में भी कोई आसक्ति न हो।

HSE-02-042017

April 1, 2017

Authored by: Towards Nature

Contributors & Support Editors: Dr. V. P. Raghuvanshi; Dr. S. P. Raghuvanshi

©Towards Nature, 2017

सर्वे भवन्तु सुखिनः सर्वे सन्तु निरामया। सर्वे भद्राणि पश्यन्तु मा कश्चित् दुःखभाग् भवेत्॥

Healthy-Safe-Environment - HSE

HSE newsletter is an initiative to share information's & bring awareness to all on Health Safety & Environment

Topics	Page number
Editorial – HSE	1 / 6
Health Around the Globe	2/ 6
Safety Around the Globe	3/ 6
Environment Around the Globe	4/ 6
Some selected leaves from News desk	5/ 6
Lets Learn & Test our Knowledge	6/ 6



Editorial

HSE Newsletter is an initiative to disseminate and share information's and provides awareness on all issues related to **Health Safety and Environment**. This Newsletter is a platform for informing mass on the activities of **Towards Nature** with awareness on Health Safety and Environmental Issues around the Globe.

Partners & promoter to this initiative of mass awareness on **Health Safety and Environment** are 1. **Towards Nature** is Patron to this newsletter and are involved in Not-for-Profit activities to conserve Environment with a motive to keep the Community safe and Healthy-<towardsnature@gmail.com>; 2.partner is **EEHC** – Energy Environment and Health Conservation : An International Journal is a budding Journal that publishes the original research from the Globe on Energy Environment and Health Conservation, and is published from UK now <eehcjournal@gmail.com>; 3.**VCERT** Management Services Private Ltd is involved in Advisory (Consulting) Services on ISO 9001; ISO 14001; OHSAS 18001 related consultation <vcertcompany@gmail.com>.

This newsletter is updated and uploaded on a quarterly Basis. Older version will be made available on the website for further reference. We look forward for a Safe and Healthy Interactions and information dissemination for general awareness.

[Discussions and information in form of Articles, Short Notes, Write-ups from contributors are invited.](#)

- Editors

Editors can be contacted for information contribution and other discussions at: towardsnature@gmail.com

अन्न दानं परं दानं विद्यादानं अतः परम् ।
अन्नेन क्षणिका तृप्तिः यावज्जीवंच विद्यया ॥

Providing food to Poor and Needy persons is the 'Best Charitable Deed', but making people learned by teaching them is the supreme form of charity.
Food gives momentary satisfaction, but the knowledge will empower them to lead a satisfactory life.

Health Around the Globe

Anger: Bad to Health

What it is? Anger is an emotion but an intense reaction to some action. When one is angry, frustrated due to some reason...our nervous system release some powerful chemicals called as Epinephrine from adrenal gland...



क्रोधो मूलमनर्थानां क्रोधः संसारबन्धनम्।
धर्मक्षयकरः क्रोधः तस्मात् क्रोधं विवर्जयेत्॥

Anger is the root cause of all misfortune.
Anger is the reason for bondage with this world.
Anger reduces righteousness, hence give up anger.

This leads to understandable increase in BP and heartbeat, Sweating, Pupil dilation and hence increase of blood pumping to skeletal muscle. Further it may leads to higher increase of your breathing pattern, blood flush to face as well. In most cases risen blood pressure, increase muscular tension, and perspiration is evident.

What bad it can bring

सहसा विदधीत न क्रियामविवेकः परमापदां पदम्।
वृणते हि विमृश्यकारिणं गुणलुब्धाः स्वयमेव संपदः॥

One should not make a sudden decision to take an action because an action without adequate mindfully and peaceful thinking leads to disaster, On other hand One who act thoughtfully lakshmi, the Goddess of wealth favours him.

A Sanskrit Shloka given above warns since ancient times on why one should avoid the emotion of Anger. In the present time of digitalization where the quote 'Words are sharper than Sword' fits really well. Similar to the physical environment where if one says words it cannot be reverted similarly, in digital platforms as well, once a post is clicked send/submit, it mostly cannot be revoked. Posting emails, messages or pictures or similar postings (on what's app, face book, twitter, etc.) while you in a rage of anger one can defame his/her relatives, close relationship etc.

How to avoid it:

Hold for a moment: when you feel anger, just hold for a moment let this high tension moment pass-by. General Saying is to suppress anger...count on to 1 to 10 and stand/move out of your posture. Further, Don't jump to any conclusion right- away at this moment. If possible move out of the present situation or environment to preferably better one.

If the anger is because cause and effect is someone else, it is advisable better not to react on it.

Try to write on a piece of paper or in notes in your mobile why are you angry? Hope this will make you understand that it's better not waste your energy on being angry.

Try to focus (if possible) on a different but smiling or wonderful moments of your life.

Make sure you don't post emails, messages or pictures (on what's app, face book, twitter, etc.) while you in a rage of anger, Avoid posting it at those moment, delay it for next day. Never post these emails/messages or similar postings.

स्वभावो नोपदेशेन शक्यते कर्तुमन्यथा।
सुतप्तमपि पानीयं पुनर्गच्छति शीतताम् ॥

Discuss with a close reliable friend (specially a family member) about your anger and your attitude appropriate!

किसी भी व्यक्ति का मूल स्वभाव कभी नहीं बदलता हचाहे आप उसे कितनी भी सलाह दे

Remember, Anger is a momentarily emotion or a chemical reaction in human system but relations, friendship and closeness to near & dear ones is for life time

षड् दोषाः पुरुषेणेह हातव्या भूतिमिच्छता।
निद्रा तद्रा भयं क्रोधः आलस्यं दीर्घसूत्रता ॥

छः अवगुण व्यक्ति के पतन का कारण बनते हैं
नींद, तन्द्रा, क्रोध, गुस्सा, आलस्य और काम को

Safety Around the Globe

Boiler explosion incidents

In this issue of newsletter the Safety Topic is related to M³ (Man, Material and Machine) Safety, while working on Boilers in 2016. We took the few case studies of Boiler Explosion in 2016 owing to their intensity:

1. Boiler Explosion, Near Dhaka, Bangladesh, Tampaco Foils Ltd, Cigarette packaging factory, killing at-least 23 workers and bringing injuries to at-least 50 people on the site¹. Fire triggered due to boiler explosion, and fire in boiler room at Tampaco Foil factory¹.
2. Boiler explosion in Malerkotla Paper Mill, India Aug 23, 2016 killing 3 workers with loss of surrounding machines. Due to sudden rise in steam pressure leading to a burst in raw paper drying cylinder. Boiler was old and it malfunctioned as reported².
3. Boiler explosion at Nickel Mine in Guatemala Aug 15, 2016, killing 5 workers. Though the factory is claimed to be world class and have newly built power plant and metal processing facility².
4. Boiler explosion in Aluminum channel factory at Dhulagarh area, Howrah, West Bengal, India on July 05, 2016, killing 5 workers². Further massive fire broke-out in factory as well².
5. Boiler explosion at RCF plant, Chembur, India July 02, 2016, killing at least 3 and injury to atleast 5².
6. Boiler explodes in Veolia steam facility, South Philadelphia, June 15, 2016, injuring 01².
7. Boiler explosion at Marian Mill, Australia, May 27, 2016, killing at least 3 and left injured atleast 5².
8. Boiler Explosion, Near Ambattur, TamilNadu, India, Chemical Manufacturing Unit, Oct 14, 2016, killing 02 workers and bringing injuries to atleast 01 workers on the site. Boiler was Old and was not replaced³.



workers and bringing injuries to atleast 100 workers on the site and shattering windows within 1km radius².

9. Boiler/ High pressure Steam Pipe Explosion, Danyang, Central China, Chemical Unit, Aug 12, 2016, killing 21 workers and bringing injuries to at-least 05 workers on site⁴ Photo Courtesy⁵.

10. Boiler Explosion, Miami Township, Hamilton County, Ohio, Crossroads Church, Jan 06, 2016, bringing injuries to atleast 05 workers on the site².

11. Boiler Explosion, Dombivili (E), Thane Maharashtra, India, Industrial Chemical Manufacturing Unit, May 27, 2016, killing 05

Reasons for these explosions and Man-Machine-Material loss can be:

1. Poor Maintenance	6. Old Machines/ attachments or boilers
2. Overlooking procedure of Preventive Maintenance	7. No Boiler inspection (as scheduled by Law)
3. Negligence in monitoring or operations by workers or contractors	8. No lessons learnt from historical incidents
4. Non operational safety indicators (pressure & temperature gauges)/ alarms/Safety valves/emergency Shut off/ Engineering controls	9. High Risk taking attitude of workers
5. Untrained operators	10. Overlooking leaks (steam/ flue gas/water/heat)
	11. Dis obedience of other Administrative controls e.g., Valid Operating certificate

Reference:

1. http://www.nytimes.com/2016/09/11/world/asia/boiler-explosion-at-bangladesh-factory-kills-at-least-23.html?_r=0
2. <http://www.thewbia.com/WP/2016-accidents/>
3. <http://www.newindianexpress.com/cities/chennai/2016/oct/14/two-staffers-killed-in-boiler-explosion-at-chemical-unit-1527729.html>
4. <http://www.zerohedge.com/news/2016-08-11/least-21-killed-after-massive-explosion-chinese-plant>
5. <https://twitter.com/PDChina/status/763692539362807808/photo/1>

For further Reading, Plz access following links:

- a. http://contractingbusiness.com/galleries/hvac-accidents-boiler-explosions#slide-0-field_images-21541
- b. https://en.wikipedia.org/wiki/Boiler_explosion
- c. https://books.google.co.in/books?id=7s4SAAAAYAAJ&pg=PA940&redir_esc=y#v=onepage&q&f=false
- d. https://books.google.co.in/books?id=QkkOAAAAYAAJ&printsec=titlepage&redir_esc=y#v=onepage&q&f=false
- e. https://en.wikipedia.org/wiki/List_of_boiler_explosions#cite_note-25
- f. <http://www.thedailystar.net/country/2-killed-tongi-factory-boiler-blast-1283578>

Environment Around the Globe

E-waste (Electronic Waste)

It is one of the category of waste commonly defined as waste that is discarded from electrical or electronic

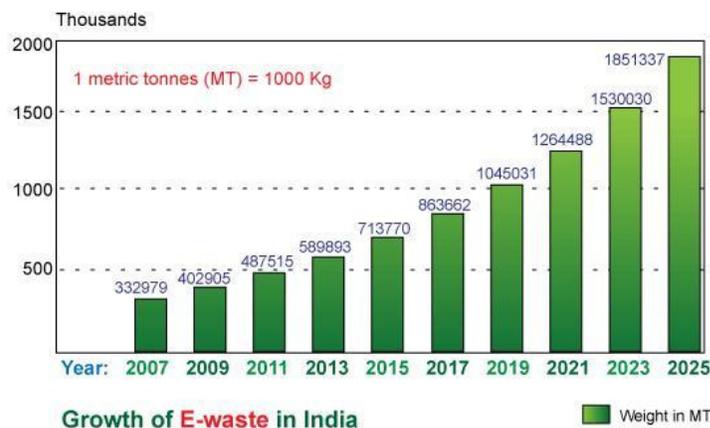


devices, mostly on the failure or their operational components or completion of life cycle or as a reason of breakdown or preventive maintenance in devices or equipments mostly like computers, TVs, cellphone, Tablets or similar voice or data transmitting gadgets. To name a few, e-waste can include for example used CDs, DVDs, external, drives, Circuit board component, ICs, used toners, cartridges, printing carbons powders, printing strips, failed devices, like computer, CPUs, cell-phones, home appliances with

electric circuits or wiring, LCD/ plasma TVs, ACs refrigerators, cut electric wires, PCBs, any other electrically operated equipments, etc. E-waste is growing at 30% per annum in India⁶. Electrical good and Electronics are normally classified as White Goods (e.g., refrigerators, ACs, Dishwashers, washing machines etc), Brown Goods (e.g., TV, camera etc) and Gray Goods (e.g., parts of computers, fax, printers, scanners, chargers, CDs etc etc). Gray Good are comparatively difficult to recycle owing to their more complex and multi-layer configuration along with higher toxic components.

✚ TOI/Times City/pg02/11Sept2016, States.... India Produces 18.5 lakhMT of e-waste annually.

✚ The Hindu/ online version States.... India Fifth largest producer of e-waste discarding 18.5 lakh tones of electronic waste each year. With more than 100 crore mobile phones in circulation, nearly 25 percent end up in e-waste annually⁷.



✚ Global volume of e-waste generated is expected to reach 130 million tons in 2018 from 93.5 million tons in 2016 at a compound annual growth rate of 17.6% from 2016 to 2018⁶.

E-waste Management Rules, 2016 as notified by MoEFCC, Govt of India has brought producers as well under EPR-extended producers' responsibility, to collect a waste collection target of 30% for first two years and progressively going upto to 70% by 7th year of the rule.

6. <http://www.thehindu.com/sci-tech/energy-and-environment/India-fifth-largest-producer-of-e-waste-study/article14340415.ece>

7. <http://www.assochem.org/newsdetail.php?id=5725>

8. Fig 1 (E-waste storage area) Courtesy: http://webcomindia.biz/blog/wp-content/uploads/bfi_thumb/E-waste-31bgnt33bybxzreyur14hs.jpg

9. Fig 2 (Growth of E-waste in India) Courtesy: <http://cdn.intechopen.com/pdfs-wm/49287.pdf>

Further reading recommended:

<http://www.intechopen.com/books/e-waste-in-transition-from-pollution-to-resource/a-review-of-technology-of-metal-recovery-from-electronic-waste#F1>

I have become my own version of an optimist. If I can't make it through one door, I'll go through another door- or I'll make a door. Something terrific will come no matter how hard the present. – Rabindranath Tagore

Some selected leaves from News* desks... This Quarter-01, 2017... & so on.....

- ✚ The Hindu/pg20/Feb17, 2017, States...**Antarctic Sea ice hits record low** (covering just 2.26 million sq. km on tuesday) as per US NSIDC.
- ✚ The Hindu/pg04/Feb17, 2017, presents a Photo depicting...A Pleasant walk... Misty morning: Thick fog covers fields and Roads at Nerul (nearly 12 kms from Panaji) on Wednesday, as Goa witness a Change in Climate.
- ✚ The Hindu/pg04/Feb17, 2017, States...ISRO launches 104 satellites (1378kg) in one go through PSLV C-37, Creates history.
- ✚ The Hindu/pg04/Feb17, 2017, presents... Olive Ridley turtles (~67,000 endangered Oliver Ridley mother turtles turning up to lay eggs) begin nesting in Ganjam.
-
- ✚ Researchers at Binghamton University in NY found that chronic exposure to Titanium dioxide- an additive present in chewing gum, candy and bread- changed digestive cell's structure and function¹⁰.
- ✚ Every year, about 735,000 Americans have a heart attack and 610,000 people die of heart disease, according to the Centers for Disease Control and Prevention (CDC)¹¹.
- ✚ India is currently witnessing nearly two million heart attacks a year and majority of victims are youngsters. Further TOI States One person dies every 33 seconds owing to an heart attack in India, In addition Men living in cities are three times more prone to heart attack than people living in villages. As for women the risk rises significantly after menopause... LDL-C (Low density Lipoprotein Cholesterol) and Diabetes, smoking, high BP genetic history, lifestyle, higher intake of carbohydrates rich foods, lack of regular physical exercise are the few leading factor for heart attacks¹².
-
- ✚ "Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems¹³.
- ✚ Observations throughout the world make it clear that climate change is occurring, and rigorous scientific research demonstrates that the greenhouse gases emitted by human activities are the primary driver¹⁴.
- ✚ Cleaner energy systems, and promoting the safe use of public transportation and active movement – such as cycling or walking as alternatives to using private vehicles – could reduce carbon emissions, and cut the burden of household air pollution, which causes some 4.3 million deaths per year, and ambient air pollution, which causes about 3 million deaths every year¹⁵.
- ✚ Climate change is expected to cause approximately 250 000 additional deaths per year between 2030 and 2050; 38 000 due to heat exposure in elderly people, 48 000 due to diarrhoea, 60 000 due to malaria, and 95 000 due to childhood undernutrition¹⁶.
- ✚ India's population growth rate, was higher than that of many developed countries and as such over exploitation of land and water resources are prevalent across the country. "The country's population is growing at a rate of 1.5% and is higher than China's 0.7%", "So, we will have to double our food production over the next 40-50 years and it has to be done in such a way that natural resources do not get depleted,"¹⁷.

For further reading plz Refer:

10. <http://www.foxnews.com/health/2017/02/20/common-food-additive-that-may-be-upsetting-your-stomach.html>
11. <http://www.foxnews.com/health/2017/02/17/heart-health-how-tos-keeping-your-ticker-in-tip-top-shape.html>
12. <http://timesofindia.indiatimes.com/life-style/health-fitness/health-news/Heart-attack-kills-one-person-every-33-seconds-in-India/articleshow/52339891.cms>
13. IPCC Fifth Assessment Report, Summary for Policymakers (2014)
14. Statement on climate change from 18 scientific associations (2009): http://www.aaas.org/sites/default/files/migrate/uploads/1021climate_letter1.pdf
15. <http://www.who.int/mediacentre/factsheets/fs266/en/>
16. WHO. Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. Geneva: World Health Organization, 2014.
17. <http://timesofindia.indiatimes.com/city/coimbatore/preserve-natural-resources-to-fight-climate-change/articleshow/56100423.cms>

* These news clips are abstracted from different sources and are not the Editors' or HSE Newsletters' self creation for reference plz refer the sources, EHS takes no responsibility on the truthfulness of the news, as these are being presented to you from the open sources/ widely available websites.

Lets Learn & Test our Knowledge :

HSE AWARENESS QUIZ

Rules & Benefits to participate in Awareness on EHS related scenarios.:

1. There will be 10 Quiz with total 50 questions till Dec 2017. Participants will have the options to participate in all quiz.
2. Every Quiz at least 5-6 quiz questions will be circulated. Best 5 answers will be evaluated and scored.
3. Every next volume, correct answers of Quiz questions will be released in the HSE newsletter.
4. Answers must reach the provided email within 2 days from date of email with Newsletter, received by individuals. Any decision will be final as accepted by at-least 3 Judges of Towards Nature. Judges will be independent and Additional judge will be nominated in case of any discrepancies.
5. 'Appreciation certificate' will be release on achieving 40/50 correct quiz response (i.e., 80% Positive score) to all successful participants. '3 Best Achievers' will be given 'Towards Nature appreciations' & Winners Certificate in a workshop proposed to be held on a suitable day, mutually agreed in 2018.
6. Judges cannot participate in the quiz.

All response and queries can be done at towardsnature@gmail.com; eehcjournal@gmail.com

HSE AWARENESS Quiz 1. **Boiler Room and its Operations**

1. There are generally five types of hazards, Physical, Chemical, Biological, Psychological and Ergonomics. Identify 4 Hazard (one each - Physical; Chemical; Ergonomics; Psychological) in steam boiler room having a chemical storage and laboratory in adjacent room.

a. Physical: _____ b. Chemical _____ c. Ergonomics _____ d. Psychological _____

2. Appropriate method/ legal requirements to execute boiler operations job.

If pressure Gauge is calibrated while temperature gauge on boiler is not calibrated, can we Operate the Boiler by using alternative means for ambient temperature indication

Your Response Yes (Y) or No (N)

3. Any ADMIN control i.e., Safe execution of this job

Do we need to have a Permit to work (PTW) system in place, if preventive Maintenance is scheduled on Boiler?

Your Response Yes (Y) or No (N)

4. Boiler is under engineering department headed by a Maintenance head. In absence of Maintenance Head Can the Boiler Incharge authorize the PTW for engineers?

Your Response Yes (Y) or No (N)

5. Is it mandatory to have subcontractors, working on preventive Maintenance, trained on Company's Emergency procedures like Fire fighting, evacuation etc. ?

Your Response Yes (Y) or No (N)

6. Is it mandatory to have subcontractors, working on preventive Maintenance, trained on Company's Emergency procedures like Fire fighting, evacuation etc. ?

Your Response Yes (Y) or No (N)



Knowledge brings humility; from humility comes worthiness; with worthiness one attains wealth; with wealth one is able to perform his duties in a better way; and in performing his duties one attains happiness - Hitopadesha