March 8 - 2018 -

St. Jude Children's Research Hospital®
ALSAC • Danny Thomas, Founder
Finding cures. Saving children.

stjude.org

DNR

SAVE OUR WATER.
DO NOT USE OUR
LAKE WATER FOR
FOXCON TO MAKE
MONEY USING OUR
LAKE WATER!

Mary P. Kennedy

Mary Kennedy
9255 66TH AVE UNIT 31
Pleasant Prairie, 53158

MILWAUKEE WI 530
08 MAR 2018 PM 3 L

ATTN: ADAM FREIHOEFER

WDNR Water Use
SECTION DG5
P.O BOX 7921
MADISON, WI 7921

3-9-18

Memo To: Adam Freihoefer
Chief of Water Use for
Wisconsin DNR

FROM: Sue Bridson
3625 Spring Trail
Madison, WI 53711
H 608-238-0038

Regarding: My great concern over the FoxConn desire to remove about 7 Million gallons daily from Lake Michigan (which violates the Great Lakes Compact requirement - requiring the use of such water be for PUBLIC USE.

And the unknown toxic chemicals that may be in the water FoxConn returns to Lake Michigan waters.

Todays date: 3-9-18

Sue's response email you might use:
<sbridson@charter.net>

Wisconsin used to be a state aware of environmental caring for its natural resources, and protecting them.

Sue Bridson
3625 Spring Trail
Madison, WI 53711

MILWAUKEE WI 530
10 MAR 2018 PM 5 L

DNR Drinking Water and
Ground H_2O Program

DG-5
P.O. Box 7921
Madison
WI 53707-7921

Attention: Adam Freihoefer

3-9-18

We are asking, Please do not approve Foxconn's plan to divert water from Lake Michigan. I know you have heard the opponent's reasons, just add our voices.

We are so fortunate to have this extremely valuable lifesustaining commodity here, help us save our fresh water.

Thank you,
Kevin Dunn + Karen Dunn

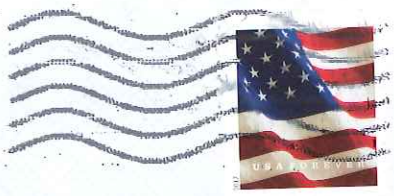
RECEIVED-DNR
MAR 12 2018
DRINKING WATER & GW

Kevin M. Dunn
9945 Camelot Dr.
Racine, WI 53406-2426
Mt Pleasant

Kevin Dunn
9945 Camelot Dr.
Mount Pleasant, WI 53406

MILWAUKEE WI 530

10 MAR 2018 PM 1 L



DNR Drinking Water and Grand Water
Program DG/5
PO Box 7921
Madison, WI
53707

ATTN: Adam Freihoefer

BISON BELLY FUTURES
Ecological Services and Environmental Education

Feb. 23, 2018

Dear Adam Feihoefer -

I am deeply concerned about water diversion application that would violate the intent of the Great Lakes Compact + I believe it would be a grave and short-sighted mistake to favor this water use for private industry (in this case, Foxconn) over the public long-term interest.

Please! I ask the DNR to reject the City of Racine's water diversion application to provide water to the future site of the Foxconn facility.

Here in the Driftless Area, we are concerned about pollution of rivers, streams, and sloughs from

Gigi La Budde
S11793 Hazelnut Road Spring Green WI 53588
608-588-2048 bbf.gigi@earthlink.net

CAFOs (confined animal facilities).
I hope all Wisconsin citizens will look out for the interests of future generations – of people, plants and animals native to our wonderful state.

Thank you for your consideration –

Gigi L Budde

16 March 2018

To Sec. Daniel Meyer,

Please take into account the future of our children, your children, your family's children. Taking water from the Great Lakes is not a sustainable option. The impacts to the environment will be substantial.

Julie Loehrl Madison, WI

3/14/18

DNR

MAR 19 2018

OFFICE OF THE SECRETARY

DNR DAN MEYER

IT IS IMPORTANT FOR THE PUBLIC TO KNOW HOW THE 70 MILLION GALLONS OF WATER A DAY FROM LAKE MICHIGAN IS BEING USED. 60% IS BEING TREATED, BUT FOR WHAT PURPOSE? WHERE IS THE OTHER 40% BEING USED BY FOXCONN? PUBLIC RESOURCES ARE BEING USED FOR PRIVATE GAIN

SR Gill

STEVEN RAHL
123 W. WASHINGTON UNIT 603
MADISON WI, 53703

DNR DAN MEYER
101 S. WEBSTER ST.
PO Box 7921
MADISON, WI 53707-7921

Water Div,

I am very concerned with a plan for Fox/Com To draw 70,000,000 gallons of water per day with 40% of that amount to be lost and not returned to the lake.

Robert W. Enloe

70,000,000 / day
× 365
whew!!!

Enloe
3887 Norwegian Hollow Rd
Dodgeville Wi. 53533

USA / FOREVER

DNR - Water Div.
1015 Webster St
Box 7921
Madison Wi. 53707-7921

I'm concerned about Fox Conn using gallons of water from Lake Michigan — not only because it violates the "public uses" section of the Great Lakes compact, but because of toxic chemicals going into the Lake. I know they say they'll treat the returned water, but I worry that won't be true enough to matter.

Patricia M. Giesfeldt
Cottage Grove, WI

P. M. Giesfeldt

MILWAUKEE WI 530

RECEIVED-DNR

10 MAR 2018 PM 2L

MAR 12 2018

DRINKING WATER & GW

DNR Drinking Water and
Ground Water Program DG-5

PO Box 7921
Madison, WI 53707-7921

Attn: Adam Freihofer

recycled
© 2015 USPS

DO NOT APPROVE

FOXCONN ACCESS

TO LAKE

MICHIGAN H_2O!!

USA / FOREVER

Kurt Thiede
DNR Deputy Secretary
P.O. Box 7921
Madison WI
53707-7921

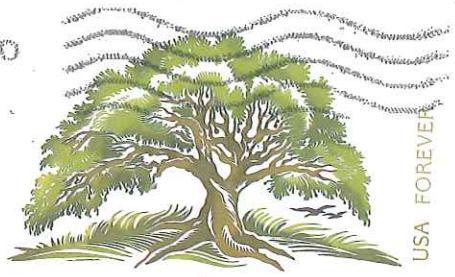
Deputy Secretary Thiede -

Seven million gallons of water from Lake Michigan PER DAY IS OUTRAGEOUS!! Taxpayers have already given FOXCONN too much and a potential lawsuit should be avoided. The Great Lakes Compact provisions should be upheld. Thank you.

Sally Mather
6524 County Road K
Blue Mounds, WI 53517-9532

AIrwin
PO Box 84
Blue Mounds, WI
53517

MILWAUKEE WI 530



USA FOREVER

No water for Foxconn from Lake Michigan

DNR Secy Dan Meyer
PO Box 7921
Madison, WI
53707

To Secy Meyer,

The waters of Wisconsin, including the Great Lakes belong to all of us and NOT to be used for profit by Foxconn.

Please reject the proposal from this foreign company!!

Harriet Irwin
Blue Mounds, WI 53517

Time to Remember to Look out + Save our Valuable Water supply. We don't need Foxconn!! to come here + use our Water,!!

Rosemary Sinkule

RECEIVED-DNR

MAR 12 2018

DRINKING WATER & GW

PARALYZED VETERANS OF AMERICA

120-2339

March 8, 18

DNR -

I am very concerned anyone, especially a foreign Industry to drain our USA Lakes of our valuable Water Supply. Its costing our taxpayer Big time + is supposed to be all Automated in 10 yrs still using all our Water for them to Make Money! No Thank You. SAVe Our Lakes.

PARALYZED VETERANS OF AMERICA

120-2339

Ms. Rosemary Sinkule
9255 66th Ave., Unit 31
Pleasant Pr, WI 53158

MILWAUKEE WI 530

09 MAR 2018 PM 3 L

WDNR Water Use
Section 06/5
P.O Box 7921
Madison, WI. 53707-7921

Attn: Adam Freihofer

2-22-18

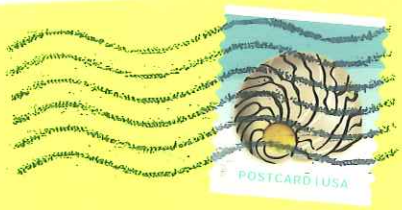
NO WATER GIVEAWAY TO FOXCONN!!

The Great Lakes Compact is meant to provide water for municipalities, private citizens, families, NOT for a private manufacturer. This is the first time that there has been a request from a private company, which is also manipulating the rules by piping water from Racine. This is a scam for a Taiwanese billionaire. Save our Great Lakes water for the public!

Kathleen Swanson
971 Lawinger Rd.
Mineral Point, WI 53565-9154

MINERAL POINT WI 530

25 FEB 2018 PM 3 L



RECEIVED
FEB 28 2018
WT/3 - WY/3 - CO/3

WI DNR Water Division
PO Box 7185
Madison, WI 53707-7185

53707-71858S

3/14/18

Dear Mr. Meyer,

I am adamantly opposed to the proposal that would allow Racine to draw 70 million gallons of water A DAY (!) from Lake Michigan for FoxConn's use. Only 40% of the water will be returned to the environment while 60% will be used up in the manufacturing process. This is a very short-sighted proposal, especially in light of all the serious water shortages becoming apparent around the world.

Sincerely,

Myra Edoe

M. Eder
3887 Norwegian Hollow
Dodgeville, WI 53533

MILWAUKEE WI 530
14 MAR 2018 PM 5 L

DNR
MAR 19 2018
OFFICE OF THE SECRETARY

Department of Natural Resources
101 S. Webster St.
PO Box 7921
Madison, WI 53707-7921

USA / FOREVER

R W Enloe
3887 Norwegian Hollow Rd
Dodgeville WI 53533-9 MAR 2018 PM 5

DNR m meyer
DNR
MAR 19 2018 5. Webster ST
PO Box 7921
Madison WI
53707-7921

recycled
© 2015 USPS

Mr. Meyer,

I am very concerned with the plan
To use 70,000,000 gallons per day by
Foy/con with 40% of that amount To
be lost and not returned To the lake.

Robert W. Enloe

70,000,000
x 365
---
whew !!!

Bruins- 53515

A common pasture scene in the rolling Wisconsin hills includes dairy cows. Over 90% of the dairy cows in the state of Wisconsin are Holstein.

Photo: © Gari Walz

OUTDOOR HORIZONS, 513 S. Ellwood St., Dodgeville, WI 53533 • 608/935-5617

PRINTED IN THE U.S.A. • K52356

05 FEB 2018 PM 1L

Dear Mr. Meyer-

I'm writing to oppose the request for Great Lakes water to accomodate the FoxConn demand. WI [redacted] loses greatly on this request, as do our other Great Lakes neighbors.

Thank you. Nancy Bruins

DNR 0.42

FEB 07 2018

POSTCARD | USA

OFFICE OF THE SECRETARY

DNR Sec. Don Meyer

POB 7921

Madison, WI

53707

AMNESTY INTERNATIONAL

Ms. Susan Michaud
10610 Fesenfeld Rd
Black Earth, WI 53515

MILWAUKEE WI 530

05 FEB 2018 PM 5 L

POSTCARD USA

I AM VERY CONCERNED ABOUT THE PROPOSAL TO TAKE 7 MILLION GALLONS OF WATER PER DAY FROM LAKE MICHIGAN TO ACCOMODATE FOXCONN - A FOR PROFIT FOREIGN COMPANY, OUR GREAT LAKES ARE TOO PRECIOUS TO ALLOW THIS. PLEASE OPPOSE THIS. THANK YOU

SECRETARY OF DNR
PO BOX 7921
MADISON, WI
53707-7921
DNR

FEB 07 2018

OFFICE OF THE SECRETARY

DO NOT ALLOW
FOX CONN access
to Lake Michigan
water.

MILWAUKEE WI 530
20 FEB 2018 PM 6 L

USA / FOREVER

Bonita Sitter
8304 Roelke Road
Blue Mounds, WI 53517

DNR Drinking Water
Attn: Adam Freilhoefer
P.O. Box 7921
Madison, WI
53707-7921

Allowing Foxconn unlimited free access to water from Lake MICH. sets a terrible precident. The Great Lakes Restoration is very vital to WI + the USA + CANADA.
SAVE the Lake.
Barita Sitter

NO to
FOXCONN
stealing
our water!
protect
our natural
resources!

stamps.com
$0.35 0
US POSTAGE
FIRST-CLASS
062S0008933463
54017
B96328.02
stamps.com

James Dick
comm. director
DNR
PO BOX 7921
Madison WI
53707-7921

PREVENT FOXCONN REQUEST FROM USING WATER THROUGH RACINE!

USA / FOREVER

DAN MEYER
101 S. WEBSTER ST.
P.O. BOX 7921
MADISON WI
53707

Secretary Meyer

Please DO NOT skirt the provisions in the Great Lakes Compact which would allow FOXCONN access to 7 million gallons of water per day from Lake Michigan. It is outrageous and would result in a costly lawsuit.

Sally Mather
6521 County Road K
Blue Mounds, WI 53517-9532

"THE GOLDEN GATE by Vikram Seth

"For all its metaphoric moments, The Golden Gate is a true novel. . . . [It] finally hooks us into caring less about its author's skill than in caring how its sad and wistful comedy will turn out."

—X. J. Kennedy, L.A. Tim

V
I
N

DO NOT APPROVE
7 million gallons'
daily drain from
L Michigan to Fox -
CONN, a for-profit
foreign company.
Great Lakes belong
to all of us - We
rely on clean drinking
H_2O - as does Ontario

CAROLINE BECKETT
5452 COUNTY RO[illegible]
BLUE MOUNDS, WI 5[illegible]

DNR Drinking H_2O
& Groundwater
DG/5
Attn: ADAM FREIHOEFER
PO Box 7921
Madison WI
53707-7921

"The Great California Novel has been written." — GORE VIDAL

Illustration by David Palladini

Brandt
7565 Mellum
Arena, WI 53503

MILWAUKEE WI 530
05 FEB 2018 PM 1

NO Great Lakes
water for
Foxconn!! DNR

Dep. Sec. Kurt Thiede
101 S. Webster
P.O. Box 7921
Madison, WI 53707

FEB 07 2018

OFFICE OF THE
SECRETARY

recycled
© 2015 USPS

Mr. Thiede –

I am vehemently opposed to allowing Foxconn to tap into Racine's Great Lakes water!!!

Was this request even brought out during the contract negotiation?

It looks like DNR has approval over this request so PLEASE lobby Ms. Meyer to DENY the proposal.

Janet Brandt

Bruins - 53515

The young lad is successful trying his hand at getting milk from a cow for the first time.

Photo: © Mabel E. Johnson

PRINTED IN THE U.S.A. • K69742

OUTDOOR HORIZONS, 513 S. Ellwood St., Goodeville, WI 53533 • 608/935-5617

FEB 12 2018

OFFICE OF THE SECRETARY

Dear Mr. Thiede,

I'm writing to oppose the request for Great Lakes water to accomodate the ToxCom demands.

WI loses greatly on this request as do our other Great Lakes neighbors.

Thank you! Nancy Bruins

Dep. Sec.
Cort Thiede
POB 7921
Madison, WI
53707

BRUINS- 53515

Another beautiful sunset over Winsonsin waters.

Photo by: GaryWatz WI 530

05 FEB 2018 PM 3 L

Dear Mr. Eberle,

I'm writing to oppose the request for Great Lakes water to accomodate the Fox-Conn demand.

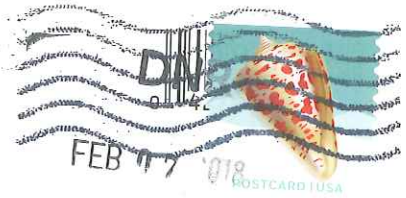
WI loses greatly on this request as do our other Great Lakes neighbors.

Thank you,

Nancy Bruins

PRINTED IN THE U.S.A. • K69744

OUTDOOR HORIZONS, 513 S. Ellwood St., Dodgeville, WI • 608/935-5611



WI DNR Asst.
Dept. Sec.
Ed Eberle
POB 7921
Madison, WI
53707

Brandt
7565 Mellum Rd
Arena, WI 53503

MILWAUKEE WI 530
FEB 2018 PM 1

Deny
Foxconn's
request for
our precious
water!

FEB 07 2018
OF THE SECRETARY

Sec. Dan Meyer
P.O. Box 7921
Madison, WI
53707

7-7921 21
© 2015 USPS

Sec. Meyer -

This private for-profit foreign Company (with a horrendous human rights record) must not be allowed to tap into water from the Great Lakes (via Racine.) Stop this proposal or Wisconsin will end up in court over this issue. You know this is unconscionable.

Janet Brandt

Brandt
2565 Mellen
Aiena, WI

MILWAUKEE WI 530
05 FEB 2018 PM 5

NO Great Lakes water for Foxconn!

DNR
FEB 07 2018
SECRETARY'S OFFICE

Asst Dep Sec. Ed Eberle
101 S. Webster
P.O. Box 7921
Madison, WI
53707

recycled
© 2015 USPS

Ms Eberle -

This is exactly what the Great Lakes compact was intended to prevent. You can't, in good conscience, approve this request. If you do, it will certainly get tied up in court.

Janet Brandt

Perhaps this is a question!
Water from Lake Michigan to Racine going to Foxconn is incomprehensible. Corporations are not allowed to draw from Lake Michigan, yet here is a tricky exception, strong lobbying against this environmental abuse on behalf of the Compact - protecting the Interior - is advisable.
53565
Thank you - Jane Stenson

80 Ridge St
Mineral Point
WI. 53565

MILWAUKEE WI 530
13 FEB 2018 PM 7L

USA / FOREVER

DNR - water specialist

PO Box 7185

Madison, WI 53707-7185

7-718585
© 2016 USPS recycled

AMNESTY INTERNATIONAL

Ms. Susan Michaud
10610 Fesenfeld Rd
Black Earth, WI 53515

7 MILLION GALLONS
OF WATER PER DAY
FROM LAKE MICHIGAN
FOR A FOR PROFIT
FOREIGN COMPANY
ALREADY RECEIVING
30 BILLION DOLLARS
FROM THE STATE OF
WI ??? PLEASE
DENY THIS REQUEST
FROM FOXCONN!
THANK YOU

DEP, SEC, KURT THIELE
PO BOX 7921
MADISON, WI
53707

DNR

FEB 12 2018

OFFICE OF THE
SECRETARY

Sandra S. Szanderek
3731 S Lenox St
Milwaukee, WI 53207-3943

February 11, 2018

To the WDNR

I wish to go on public record as opposing the requested diversion of Lake Michigan water to be used by Foxconn in Mount Pleasant, Wisconsin.

At this time it is unclear what specific after use impurities might be cycled out of the plant or if the Racine water treatment facility could adequately address them.

Lake Michigan already faces many challenges. We need more data before any approval is granted. It would be reckless to rush this forward for political reasons.

I must also note that this public hearing should have been scheduled well before the land purchase and establishment of a downtown Milwaukee headquarters; at this late date it has all the markings of a done deal. Our State deserves better!

Sincerely

Sandra S. Szanderek

Retired Field & Teaching Naturalist U.W Extension

February 25, 2018

Dear Friends,

I must add my voice to those who are AGAINST the diversion of Lake Michigan water for Foxconn's development.

Of course, I am against the Foxconn development in general — against a foreign company receiving so much public money for private gain.

It's been made to look as if Foxconn is doing us a favor by locating here, but I realize this is just good old American marketing for another project we do not really need. No doubt the availability of Great Lakes water is one of the most important reasons for their coming here.

Of course I also know the DNR will certainly approve this diversion and that this public input is a mere formality! How could the DNR possibly go against the governor, the state legislature, the US President, and the Speaker of the House? Clearly, that horse is gone!

Even so, keep in mind your duty to protect and safeguard our environmental quality. You know that when something/anything environmental goes wrong, a scapegoat will be found. But finger-pointing after the fact does not help.

You must work to prevent such damage, and the only way to do that is to gain as much true information about what Foxconn is planning to do beforehand.

Therefore I urge you to delay as long as necessary your approval. What will Foxconn do to the water (or the landscape) and how will they make it pure again?

I feel the Foxconn project, still in its infancy, is going to be a very high maintenance partner. Already there is talk of special highway lanes for self-driving cars.

Foxconn's wants for water and anything else will only grow, and its impact in SE Wisconsin will be greater than can be foreseen.

Be on your guard! You must not tolerate any more environmental degradation.

Be Bold! Good Luck!

Sincerely,

Donald E Vogelsang

Mr. Donald E. Vogelsang
3731 S. Lenox St.
Milwaukee, WI 53207-3943

Martin and Karen Voss
S7345 County Road B
Eau Claire, WI 54701

March 1, 2018

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison, WI 53707-7921

Re: City of Racine water diversion application

Dear Adam Freihoefer,

We oppose the City of Racine's water diversion application. Racine proposes to divert up to seven million gallons of Great Lakes Basin water per day. The Great Lakes Compact (GLC), specifies that diversions are acceptable only under limited circumstances, and for public water consumption. Instead, the proposed water diversion would go to a private industry, Foxconn, which is not even required to have a water supply service area plan, under special rules enacted just for Foxconn.

The GLC was a product of many years of collaborative effort by Great Lakes Basin states and Canadian provinces. The overarching intent of the compact was to preserve this fresh water resource and protect it from being sold to the highest bidder. There is no surplus of fresh water in the Great Lakes Basin. The replenishment rate via runoff and groundwater is less than 1% per year, considering the existing consumptive uses within the basin.

How can the City of Racine project that there would be no new or increased withdrawal to meet this Foxconn diversion demand? In 2016, the city withdrew an average of 16.9 million gallons per day. The proposal is to withdraw an additional 7 million gallons per day. Under the current application proposal, 2.7 million gallons per day, or nearly 40% of the water withdrawn will be consumed, and not returned to the Great Lakes Basin.

The application identifies that most of the Foxconn consumptive use may occur in the Lake Michigan Basin, but has been included in the application for "flexibility in facility design". This language indicates that Foxconn could design their facility in a way that water would not need to be diverted out of the basin, but they are choosing to grease the skids for less environmentally sound alternatives if they are more expedient. Why would the state proceed with this application in the absence of verified information that the diversion is needed? In the past, communities with much more compelling reasons for diversions have been denied.

While the permitting process for Great Lakes Basin water withdrawals focus on water quantity rather than water quality, the public needs to know that what pollutants and toxins would be in the water being returned to the basin via the Racine treatment plant, and whether the treatment plant can adequately remove these pollutants and toxins.

If this application is approved, it will set a new and dismally low bar for protecting our precious Great Lakes fresh water resource.

Sincerely,

Martin J Voss Karen S Voss

Martin J Voss Karen S Voss

WISCONSIN LEGISLATURE

P. O. Box 7882 Madison, WI 53707-7882

February 8, 2018

Dan Meyer, Secretary
Wisconsin Department of Natural Resources
PO Box 7921
Madison, WI 53707

Dear Secretary Meyer,

The City of Racine has applied for a diversion of Great Lakes water in order to serve the proposed Foxconn development in Mount Pleasant. With a stated need for 7 million gallons a day, nearly 3 million of those gallons lost to consumptive use, it is essential that the Department of Natural Resources closely scrutinize the application and ensure it meets the high standards of the Great Lakes Compact.

The Great Lakes-St. Lawrence River Basin Water Resources Compact was a negotiated document agreed to by all 8 Great Lakes states and 2 Canadian provinces. The goal was to preserve this essential resource against depletion and over use by those not in the Great Lakes basin. During the negotiation, a compromise was reached to allow for straddling communities and communities in straddling counties to apply for a diversion of Great Lakes water.

Legislative findings in 2007 Act 227 state that "waters of the basin are precious public natural water resources shared and held in trust by the states;" and that the "waters of the basin can concurrently serve multiple uses.... recognizing that such uses are interdependent and must be balanced;" and "future diversions and consumptive uses of basin water resources have the potential to significantly impact the environment, economy, and welfare of the Great Lakes—St. Lawrence River region;" and "parties have a shared duty to protect, conserve, restore, improve, and manage the renewable but finite waters of the basin for the use, benefit, and enjoyment of all their citizens, including generations yet to come."

The statutory language for straddling communities in 281.346(4)(c) is clear that a diversion can be approved only if the water is used "solely for public water supply purposes in the straddling community." A public water supply is defined in 281.346(1)(pm) as water that is distributed to the public that serves "a group of largely residential customers and that may also serve industrial, commercial and other institutional customers." Clearly this diversion request is for Foxconn. Note that the language is *largely residential*, not solely industrial and commercial.

It is the responsibility of the Department of Natural Resources to make a scientific decision on any application based on the standards put forth in the Compact. Applying for a diversion is the right of any community that meets the statutory criteria. But the ability to apply is by no means a guarantee of approval. It is essential to meet the standards.

The DNR will be holding a public hearing and 30 day comment period. We ask that you thoroughly consider all issues and explanations raised by all sides. The citizens of Wisconsin and the Great Lakes Basin deserve a thoughtful, well-reasoned, science-based decision that complies with the compact agreement.

Sincerely,

Mark Miller
State Senator
16th Senate District

Jennifer Shilling
State Senator
32nd Senate District

Fred Risser
State Senator
26th Senate District

Dave Hansen
State Senator
30th Senate District

Jon Erpenbach
State Senator
27th Senate District

Tim Carpenter
State Senator
3rd Senate District

Chris Larson
State Senator
7th Senate District

Janet Bewley
State Senator
25th Senate District

Feb. 16, 2018

Dear Mr. Freihoefer,

Foxconn should not be allowed to withdraw 7 million gallons of water/day from Lake Michigan. They should also not be allowed to pollute the air or to violate other environmental laws. The DNR is supposed to protect the air and water, and so should prevent Foxconn from polluting, and from using so much water from Lake Michigan. If they're only going to use 2.7 million gallons/day, then they should not be allowed any more than that. If they are, then they should get permission from the Great Lakes Compact.

I remember what the environment was like before the Clean Air and Clean Water Acts. And the terrible air and water pollution, like the Cuyahoga River burning in Ohio. Allowing Foxconn to violate environmental laws has led to

Republican legislators passing bills that weaken environmental laws, using the excuse that other companies shouldn't be restricted if Foxconn isn't going to be.

So please do the job that the DNR has done for many years, protect the air, water for the preservation of the health of the state's people and creatures. The DNR has done an excellent job of this, even better than the EPA.

Thank you!
Sincerely,
Genie Ogden

PS - I have a degree in Environmental Studies. I also was an LTE at the DNR, in the Groundwater section.

Ogden
Madison St.
on WI 53711

MILWAUKEE WI 530

15 FEB 2018 PM 1

Forever · USA

DNR Drinking Water & Groundwater Program
DG/5 Attn: Adam Freihoefer
PO Box 7921
Madison WI 53707-7921

53707-792121

Feb 20, 2017

Dear DNR:

Concerning Foxconn, in Racine, straddling the watershed; and needing DNR approval for ~~Lakit~~ Lake Michigan water, about which there is soon to be a public meeting. My opinion is, do not let Foxconn discharge ~~and~~ any wastewater into the Lake as there will be heavy metals such as Cadmium and Mercury in it. And also do not let Foxconn take any water from Lake Michigan, as this whole deal is corrupt, it is a ~~fam~~ form of taxation, and unfair to other businesses. Let there be no diversion, 0 galls, of Lake Michigan for Foxconn.

Sincerely,

Timothy Friske

Mr. Timothy Friske
831 E Wilbur Ave
Milwaukee, WI 53207-3456

(414) 483-8370

3700 S. Pine Ave.
Milwaukee, WI 53207

Febrary 19, 2018

Dear Mr. Freihoefer,

If all gun legislation creates a slippery slope toward confiscation, the Foxconn water diversion proposed by Mount Pleasant creates not a slippery slope but a bobsled run for future irresponsible water diversions.

Sincerely,

Phillip A. Welte

Michael and Anne Barnes

7812 34rh Avenue

Kenosha, WI 53142

March 20, 2018

DNR Drinking Water and Groundwater Program DG/5

Attn: Adam Freihoefer

PO Box 7921

Madison, WI 53707-7921

We are like many people concerned about what type of pollutants will be discharged into Lake Michigan from building Liquid Crystal Display (LCD) panels. We also wonder if the DNR is aware there is a product called Organic Light Emitting Diode (OLED) a more efficient and superior to LCD panels. Organic (LED) is the future why are we investing in Foxconn and polluting with the LCDs. Foxconn is such a massive investment. We wonder if anyone has done enough research as technologies can change quickly.

We believe our Great Lakes are priceless. Why are taxpayers paying a mega company like Foxconn to use Wisconsin's greatest resource? Foxconn should be paying for use of such a precious commodity as our Great Lakes.

Sincerely,

Michael & Anne Barnes

Michael and Anne Barnes

Barnes Family
PO Box 580076
Pleasant Prairie, WI 53158

MILWAUKEE WI 530
20 MAR 2018 PM 7 L

DNR Drinking Water + Grdwater Progra
Attn: Adam Freihofer
PO Box 7921
Madison WI 53707-792

53707-792121

24 N Prospect Ave
Madison, WI 53726
February 28, 2018

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison WI 53707-7921

In regards to: Diversion of Lake Michigan water for Foxconn

Dear Mr. Freihoefer,

I understand that the DNR has been asked by the City of Racine to divert water from Lake Michigan to provide water to the future site of the Foxconn Facility.

I strongly oppose this diversion. The diversion is for a private party, not a public one, thus not abiding with the Great Lakes Compact. I believe, if approved, the matter would set a dangerous precedent for diversion of one of our most valued resources, namely, water.

I am concerned that if the diversion is approved, the quality of the water that would be returned to Lake Michigan would require much greater scrutiny than is currently provided in the application.

I ask that you reject the application by the City of Racine to divert Lake Michigan water to the future Foxconn facility.

Regards,

Joyce C. Knutson

Joyce Knutson

Joyce Clark Knutson
24 N Prospect Ave
Madison, WI 53726-3974

MILWAUKEE WI 530
01 MAR 2018 PM 3 L

DNR Drinking Water & Groundwater
Program DG/5
ATTN: Adam Freiholefer
P.O. Box 7921
Madison, WI 53707-7921

53707-792121

David Gennrich

2065 Donmar Lane Brookfield WI 53005 786-4677

Apr 11, 2000

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison WI 53707-7921

Re: Racine Water Diversion

Gentlemen,

I would like to go on record as opposing the diversion of 7 million gallon of Lake Michigan Water to the Town of Pleasant Prairie on the following grounds:

1. The request should be coming from the Village of Pleasant Prairie as it is the straddling community that will receive the Lake Michigan water for use in the Mississippi River watershed.
2. As the Village of Pleasant Prairie is the straddling community, the request for a diversion of Lake Michigan water to areas west of the divide would be subject to the conditions set forth in the Great Lakes Compact and subject to the approval of the Governors of the states surrounding the Great Lakes.
3. The Compact requires that the water, less consumptive use, be returned to the Great Lakes. It appears from reports that the consumptive use could be excessive approaching 3 million gallons per day.
4. The City of Racine may enter into a contract with Village of Pleasant Prairie to provide water for them, but the City of Racine application to the DNR should be to extend their water service area, not for the diversion itself.
5. The Great Lakes Compact requires that the diversion be for public use only, not for business purposes.
6. A comprehensive Environmental Impact Study should be required to determine what pollutants would in the return flow to Lake Michigan and whether Pleasant Prairie or Racine have the capabilities to remove such pollutants.
7. There has been no review of Village of Pleasant Prairie's water conservation plan and how that would it affect the diversion as set forth in the Great Lakes Compact..

Thank you for your consideration.

Sincerely,

David Gennrich

David Gennrich
2065 Donmar Ln
Brookfield WI

MILWAUKEE WI 530

05 NOV 2018 PM 3 L

DNR DRINKING WATER AND GROUNDWA
ATTN: ADAM FREIHOEFER
PO BOX 7921
MADISON WI 53707-7921

53707-792121

Martin and Karen Voss
S7345 County Road B
Eau Claire, WI 54701

March 1, 2018

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison, WI 53707-7921

Re: City of Racine water diversion application

Dear Adam Freihoefer,

We oppose the City of Racine's water diversion application. Racine proposes to divert up to seven million gallons of Great Lakes Basin water per day. The Great Lakes Compact (GLC), specifies that diversions are acceptable only under limited circumstances, and for public water consumption. Instead, the proposed water diversion would go to a private industry, Foxconn, which is not even required to have a water supply service area plan, under special rules enacted just for Foxconn.

The GLC was a product of many years of collaborative effort by Great Lakes Basin states and Canadian provinces. The overarching intent of the compact was to preserve this fresh water resource and protect it from being sold to the highest bidder. There is no surplus of fresh water in the Great Lakes Basin. The replenishment rate via runoff and groundwater is less than 1% per year, considering the existing consumptive uses within the basin.

How can the City of Racine project that there would be no new or increased withdrawal to meet this Foxconn diversion demand? In 2016, the city withdrew an average of 16.9 million gallons per day. The proposal is to withdraw an additional 7 million gallons per day. Under the current application proposal, 2.7 million gallons per day, or nearly 40% of the water withdrawn will be consumed, and not returned to the Great Lakes Basin.

The application identifies that most of the Foxconn consumptive use may occur in the Lake Michigan Basin, but has been included in the application for "flexibility in facility design". This language indicates that Foxconn could design their facility in a way that water would not need to be diverted out of the basin, but they are choosing to grease the skids for less environmentally sound alternatives if they are more expedient. Why would the state proceed with this application in the absence of verified information that the diversion is needed? In the past, communities with much more compelling reasons for diversions have been denied.

While the permitting process for Great Lakes Basin water withdrawals focus on water quantity rather than water quality, the public needs to know that what pollutants and toxins would be in the water being returned to the basin via the Racine treatment plant, and whether the treatment plant can adequately remove these pollutants and toxins.

If this application is approved, it will set a new and dismally low bar for protecting our precious Great Lakes fresh water resource.

Sincerely,

Martin J Voss Karen S Voss

Martin J Voss Karen S Voss

Martin & Karen Voss
S7345 County Rd. B
Eau Claire, WI 54701

SAINT PAUL MN 550
03 MAR 2008 PM 2 L

DNR Drinking Water & Grou
Attn: Adam Freihoefer
P.O. Box 7921
Madison, WI 53707-792

53707-792121

March 8, 2018

WDNR Water Use Section DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison WI 53707-7921

Dear Mr. Freihoefer:

We appreciate the opportunity to express our opinion on the Foxcon diversion application. (We attempted to email per the address included in the *Kenosha News* story, but it was undeliverable.)

We are against Foxcon's water diversion application. We are against a foreign company (or any domestic company for that matter) being allowed to drain huge volumes of water from Lake Michigan. We additionally have serious doubts about the company's desire and ability to return clean water to Lake Michigan.

It is too bad that Governor Walker made such a lousy promise - a promise that anyone with an environmental conscience shouldn't keep - to Foxcon, but our Great Lake Michigan and our wonderful Wisconsin environment is something we value and wish to keep intact and pristine.

Since 2016, Niagara Bottling in Pleasant Prairie, Wisconsin has daily drained huge volumes of Lake Michigan water. This is also a travesty (5.5 million 16-oz. bottles per 24 hours). Granted, not all of this water is drained from Lake Michigan; some is trucked to Pleasant Prairie from a spring in Madison. But please don't tell Foxcon about the Madison spring or the company will want to get its siphons on that spring water, too.

We are completely against this diversion application. Keep the Great Lake Michigan intact for us and future generations.

Sincerely,

Penelope Haney, 7925 26 Avenue, Kenosha WI 53143
Doris Werwie, 7925 26 Avenue, Kenosha, WI 53143
Orville Haney, 7728 23rd Avenue, Kenosha WI 53143
Adele Haney, 7728 23rd Avenue, Kenosha WI 53143

9 March 18

To the "DNR"

I am absolutely, adamantly & unequivocally AGAINST diverting such massive amounts of Great Lakes water to the industrial complex of FoxConn.

I am against the financial incentives and the exemptions from DNR regulations on environmental distruction being granted to FoxConn.

This sets an unacceptable precedent for future environmental distruction & erosion of regulations to placate corporate interests.

Also, I believe the DNR has been so gutted by the pro-corporate Republican party that the agency no longer has the wisdom or desire & therefore the authority to analyze or render a valid judgement on environmental or public concerns.

Sincerely, Jacklyn Vlackina

address on back

Jacalyn Vlacking

7515 19th Ave

Kenosha WI 53143

March 13, 2018

Dear Sirs and Madams:

On Wednesday, March 7, the hearing was held by the Wisconsin DNR regarding the Racine Water Diversion application for Foxconn.

The meeting was well organized and all those who testified were prepared and made extremely thoughtful comments while all attendees were attentive and respectful.

After hearing both pros and cons for the water diversion, I have several serious concerns. First, the DNR is considering this application with NO disclosure from Foxconn on what chemicals and elements are going to be used in production and potentially end up in the water. Many of the elements used in Foxconn production in their China plants emit foul smelling air pollution and are proven carcinogens.

Comments were made to the effect that water treatment managers will be careful to be sure the water is sufficiently purified before being returned to the lake. However, other experts testified that not all of these chemicals can be completely removed from the water and pose a threat to water quality because of the cumulative effect of adding millions of gallons of tainted water over time thus raising these chemicals to toxic levels in the lake.

I feel that the DNR has not done due diligence in examining the entire range of the possible impacts of this water diversion. We cannot take for granted that our leaders have all the facts and are keeping the best interest of the public in the forefront. The lack of knowledge shown by the DNR representatives made us concerned about not only Lake Michigan protection but also potential dangers Foxconn may present to air quality and ground water in Mt. Pleasant and the surrounding communities.

Another vital concern is the fact that approving a water diversion for Foxconn will violate the Great Lakes Compact which strictly provides that water diversions from the Great Lakes only be allowed for public use. Foxconn is asking for millions of gallons for Private use and will be using far more dangerous substances than residential use would ever put into water.

Overriding key factors in the Great Lakes Compact would set a very dangerous precedent for the Great Lakes basin ultimately endangering our greatest resource.

The time allowed for comment and research into the effects of such a diversion is not sufficient to consider all the ramifications. (March 21) Foxconn needs to disclose specifics so we know exactly what we are dealing with and what the environmental impact will be for the health and safety of all concerned. The impact could be very far reaching.

Based on what we know at this time, we say NO to this agreement. What we don't know can hurt us and can cause long term damage to the fresh water resource we, and millions of others, depend on for life.

Thank you for your attention,

Carolyn Scheer

1655 County Road V, Mt. Pleasant, WI 53177

March 12, 2018

DNR Drinking Water and
Groundwater Program
DG/5, Attn. Adam Freihoefer
P.O. Box 7921
Madison, WI 53707-7921

To the DNR:

You are supposed to be here to protect our wetlands, lakes and streams, certainly the Great Lakes.

I URGE YOU TO PUT A STOP TO FOXCONN.

Wisconsin was "once upon a time" a leader in conservation and environmental protection. You are the Department of Natural Resources – PLEASE don't allow our natural resources to be put at risk.

A concerned citizen of
Walworth County,

Lucinda Hahn

Lucinda Hahn

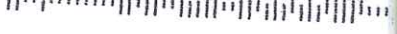
Lucinda Hahn
323 W. Court St., Apt. 113
Elkhorn, WI 53121

MILWAUKEE WI 530

13 MAR 2018 PM 1 L

DNR Drinking Water and
Groundwater Program
DG/5, Attn. Adam Freihoefer
P.O. Box 7921
Madison, WI 53707-7921

53707-792121



March 15, 2018

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison WI 53707-7921

Hello,

I am appalled that the Wisconsin DNR has had no response to the green-light given to the plan allowing Foxconn to divert 7 million gallons a day of Lake Michigan water.

I was always so proud of our state government's commitment to open and fair protection of Wisconsin resources. No more. The latest decision to divert 7 million gallons per day goes directly against the Great Lakes Compact which bans diversions outside the Great Lakes basin unless they meet narrowly defined exceptions.

The DNR should also be reviewing the company's industrial-scale addition of chemicals to its manufacturing and wastewater treatment processes and the potential impact on the environment.

The DNR no longer protects the resources of Wisconsin for its citizens and their descendents.

Shame on you.

Jan Carroll

Sincerely,

Jan Carroll
Wisconsin resident and voter

Carroll
2928 N Bowman
Milw, WI 53212

MILWAUKEE WI 530
16 MAR 2018 PM 1 L

DNR Drinking H_2O & Groundw
DG/5
P.O. Box 7921
Madison, WI 53707-79
Attn: Adam Freihoef

ATTN: Adam Freihoefer

This letter is in regards to the request by Racine to draw water from Lake Michigan for usage by Foxconn outside the Great Lakes Basin. This violates the terms signed by eight governors. This water is for use outside the basin with only the agreement of all eight governors primarily for residential use and not for a foreign industry.

The discharge water from Foxconn is of even greater concern. How this can be properly treated and monitored is highly questionable and a very gray area.

Upon approval, this complex was supposedly to be 20 million sq. ft. After approval it has grown to 32 million sq. ft. This is the equivalent of 750 acres of runoff from roof tops plus parking lots creating flooding. Racine Co. already has high polluted air levels which could increase even more with Foxconn. Thousands of acres of farmland will be destroyed and traffic will be horrible!

I believe Foxconn located here out of necessity because of the shut down of factories in China due to air pollution. This brings China here. More China factories may be looking to locate here. Mt. Pleasand will no longer be pleasant!

The D.N.R. has a legal and moral duty as protectors of our air, land and water to reject this request. If you give the green light to this monster, the D.N.R. is no longer a functioning agency!

Robert Gehring

Robert Gehring
P.O. Box 64
Bassett, WI 53101
262-448-1411

not a valid address
not wisconsin.gov.

RECEIVED-DNR
MAR 19 2018
DRINKING WATER & GW

From: Carol Endl
Sent: Wednesday, March 14, 2018 7:49 PM
To: DNRRacineDiversion-Comments@wisconsin.go
Subject: Choppy Waters Article

Although I am not from Racine, I am from Wisconsin and I do NOT agree that the DNR is thinking about possibly violating the "multi-state Great Lakes Compact". These great lake waters are meant for a lot of folks NOT just one company by the name of Foxconn. I cannot believe that our governor would consider going against this agreement. What is the state of Michigan wanted to drain the waters for a company going there.

You must consider the good of all, not the good for one company. Based on the facts that road construction and other things are already underway, I hope that this does not sway your decision from the right one. For ALL, not one.

Thank you.

Sent from Mail for Windows 10

tend hearing

by Racine, which samples water from one of 40 commercial users each day.

Have a voice

The DNR will accept public comments on the city of Racine Water Diversion application until March 21.

Send written comments to: WDNR Water Use Section DG/5, Attn: Adam Freihoefer PO Box 7921 Madison, WI 53707-7921

Email comments to: DNRRacineDiversion-Comments@wisconsin.gov.

not valid address .gov

Wisconsin Department of Natural Resources
Public Hearing on the City of Racine's Application for Diversion of Great Lakes Water

Comment Form

iMET Center, Sturtevant, WI

March 7, 2018

Name: *Russell and Nancy Glodowski*

Address: *1114 59th Drive, Union Grove, WI 53182*

Who you represent: *Resident of Racine County*

Comments: *We are life long residents of Racine County and we "oppose the Diversion of Great Lakes Water and any and all matters pertaining to Foxconn." Foxconn thinks the laws don't apply to them because our governor and our state politicians are bending the laws to fit their needs. The laws should apply to Foxconn more than ever because of their terrible track record and all the "unknowns" that are involved in this costly project. They come into our peaceful farming community they take our land, they want to take our water and they will destroy our environment.*

This Foxconn project is going to change our great farming community forever and not for the better.

If you are unable to submit your comment today please send comments to:

DNR Bureau of Drinking Water and Groundwater
Attn: Adam Freihofer
Box 7921
Madison, WI 53707-7921
DNRRacineDiversionComments@wisconsin.gov

March 19, 2018

DNR Drinking Water and Groundwater Program DG/5
Attn: Adam Freihoefer
PO Box 7921
Madison, WI 53707 - 7021

RECEIVED-DNR

MAR 2 1 2018

Mr. Adam Freihoefer:

We are writing to make clear our objection to FoxConn's request to divert water from Lake Michigan for use in their proposed manufacturing process.

It was a long and hard process achieving the Great Lakes Water Diversion Agreement, which includes Canada and all bordering states.
This is the second time Wisconsin has attempted to break the agreement and override the clear intent of the Great Lake Compact Agreement.

We are asking what is left of our DNR to stand up and oppose the FoxConn request for water diversion!

Sincerely,

Dennis and Ann Bryan

Dennis and Ann Bryan

March 21, 2018

Mr. Adam Freihoefer
Water Use Section Chief
Wisconsin Department of Natural Resources
101 S Webster Street
Madison, Wisconsin 53703

Dear Mr. Freihoefer:

This letter outlines objections to the City of Racine Application For Water Diversion dated January 26, 2018 (*Racine Application*) and urges the Wisconsin Department of Natural Resources to deny the *Racine Application*.

The foundation of this objection is based on the meaning and intent of Public Water Supply Purposes. The *Racine Application* is not consistent with this important stipulation of the Great Lakes-St. Lawrence River Basin Water Resources Compact dated December 13, 2005 (Great Lakes Compact). Below is the relevant Great Lakes Compact language:

ARTICLE 1
SHORT TITLE, DEFINITIONS, PURPOSES AND DURATION

Public Water Supply Purposes means water distributed to the public through a physically connected system of treatment, storage and distribution facilities serving a group of largely residential customers that may also serve industrial, commercial, and other intuitional operators. Water Withdrawn directly from the Basin and not through such a system shall not be considered to be used for the Public Water Supply Purposes.

From Great Lakes Compact, Page 3 of 27

Section 4.9. Exceptions to the Prohibition of Diversions.

1. Straddling Communities. A Proposal to transfer Water to an Area within a Straddling Community but outside the Basin or outside the source of Great Lake Watershed shall be excepted from the prohibition against Diversions and be managed and regulated by the Originating Party provided that, regardless of the volume of Water transferred, all the Water so transferred shall be used soley for *Public Water Supply Purposes* within the Straddling Community, and: …. (Italics added here for emphasis)

From Great Lakes Compact, Page 15 of 27

The *Racine Application* is clearly **NOT** intended for the public but rather for primarily a single industrial user (Foxconn). This is shown in Table D-1 of the *Racine Application* (p. 17) which lists 2050 Forecast Diversion Volume by Land Use with Average Day Volume (mgd) for Industrial-Foxconn at 5.8 mgd and Commercial and Industrial at 1.2 mgd for a total of 7.0 mgd. There is no forecast for residential customers included with Racine's forecasted water-supply needs. The *Racine Application* is soley for one industrial and some future commercial purpose.

The *Racine Application* does address the Public Water Supply Purposes on page 14; however, their argument minimizes the intent of the diversion (to serve primarily one industrial user) and distorts the notion that the diverted water is to be "distributed to the public". The Racine Water Utility (RWU) currently serves only a "portion of the Village of Mount Pleasant" and does not currently serve the public in the area of the proposed Foxconn development. Map C-1 of the *Racine Application* (p. 15) shows the Racine Water Distribution with Proposed Improvements and illustrates that the requested diversion is intended to expand the service area of RWU.

Figure C-1 from the *Racine Application* (p. 16) presents data from RWU's 2016 annual report to the PSC to justify that Racine's retail base is largely residential. This justification is misleading given that none of those retail customers reside in the proposed expanded service area of RWU.

The *Racine Application* requests diversion water for an expanded service area of RWU, which is the same topic that generated much public comment and debate during the review of the City of Waukesha's Great Lakes Water Diversion Application (Waukesha Application). The conditions for approval of the Waukesha Application provide a precedence for consideration of using diverted Great Lakes water for an expanded service area.

The Waukesha Application was approved by the Great Lakes-St. Lawrence River Basin Water Resources Compact Council (Compact Council) on June 21, 2016. The Compact Council approved the City of Waukesha's Diversion Application in June 2016 with conditions that included:

- a reduced diversion volume of 8.2 million gallons per day
- a smaller diversion area of only the area currently served by the Waukesha Water Utility

From: http://dnr.wi.gov/topic/EIA/waukeshadiversionapp.html

These two conditions were agreed upon by the Compact Council in response to much public comment and careful consideration by the Compact Council. Wisconsin's approval of these conditions (as a voting member of the Compact Council) signals agreement that diverted Great Lakes water can NOT be used for an expanded service area.

Approving the *Racine Application* to divert Great Lakes water for a single industrial user would set a terrible precedent for future water diversion considerations under the Great Lakes Compact. Approving the *Racine Application* to divert Great Lakes water to an extended service area would contradict the precedent established in the Final Decision of the Waukesha Application approval. For these reasons the *Racine Application* should be denied.

Dr. John D. Skalbeck
11212 86th Street, Pleasant Prairie, Wisconsin 53158

For the purpose identification and credentials only
Dr. John D. Skalbeck
Professor, Geosciences Department
Academic Director, Master of Science in Sustainable Management
University of Wisconsin-Parkside, 900 Wood Road, Kenosha, WI 53141

Mon. March 19-2018

D. N. R

Gentleman,

Please know that I expect you to follow the spirit and intent of the Great Lakes Compact; and, to "deny" The Foxconn diversion proposal.!!

I ask that you deny the applications as it now stands.

"We are responsible to be stewarts of this great area.

Thank you; it we "the people" expect you to represent us!!!

Sincerely,

Cecilia Dunlap

Ms. Cecelia A. Quinlan
W7001 County Road Cs and Q
Poynette, WI 53955

DNR Drinking Water /
P.O. Box 7921
Madison,
5370

Att:
Adam Freihoefer

March 15, 2018

DNR Drinking Water and Groundwater Program DG/S
Attn: Adam Freihoefer
P.O. Box 7921
Madison, WI 53708-7921

Re: **Opposition** to Foxconn Using Lake Michigan Fresh Water and Consequences of Toxic Elements Cumulative Effect on Our Water Systems

I am writing to the DNR to express my views relative to the Lake Michigan Water Diversion for Foxconn.

I was at the meeting on the 7th and am ADIMANTLY OPPOSED to the use of any water taken from Lake Michigan for Foxconn for the purpose of industrial use. The very brief comments made at the Carthage meeting on the 14th was that Foxconn was only replacing (so to speak) water usage that is no longer used by other industrial companies displaced (i.e., American Motors, Brass, etc.). Do they actually believe this is an accurate portrayal? First of all, hopefully, the criteria for all filtration systems on a Federal, State and Local levels are so radically different even since those companies have disappeared, along with the chemicals used in manufacturing. We are looking for toxicity in chemicals never seen before. We know a tremendous more about the impact of chemicals today and what harm they actually do long term.

Chemicals are affecting aquatic environments and may be coming back to haunt us in unanticipated ways. Researchers are finding that although the affects of a single chemical may not be deadly, combinations of chemicals in our environment can be potent. I actually had an opportunity to talk to someone at the Racine Water Plant a short time ago before the public learned about Foxconn. I asked about the chromium being dumped into Lake Michigan by a major industrial firm in Indiana. It was explained that the amount was so small that it would not be

harmful. Over the last few weeks and with the DNR meeting last week, I started thinking about "what is the cumulative effect?" I cannot believe that we don't have Federal healthcare experts weighing in on this. The waterfall effect of diseases that are created by the cumulative effect of these toxic chemicals is far reaching (cancer, nervous system issues and damage, dizzy spells, headaches, extreme numbness, muscular atrophy, hypersensitivity to cold, and others). Many of these symptoms never go away (chemicals like: n-hexane, indium tin oxide, greenhouse gases, copper, benzene and others). This does not include other chemicals already in the lakes and going into the lakes from other companies (i.e. chromium, mercury, etc.), which act synergistically with other toxic dumping and have recorded symptoms or tremors, deafness and blindness and because there has not been long term studies (most of the material available; many just state "unavailable"). Again, why haven't we had input from some of the biggest in the country, like NIH and others. Are we just saying it's ok to poison our people because we want this for the state political interest ($$$$$$$$$)?

Putting politics aside, we have to have the protective departments true to their intended purpose. The DNR and the EPA were established to assure both human and ecology are kept in check...not for the next few months, but for future generations. We entrust that your job to be one of the most critical, although behind the scenes, to have purpose and vision to be the ultimate conservation management to protect us by standing firm for the proper use of the countries natural resources. Many are devastated by the upheaval of taking their land, some of which has been owned for generations. But even beyond that, the thought that the impact is not just about those families but the families of those who will work at this facility and those in the surrounding areas.

The manufacturing of LCD fabrication has been called "probably the dirtiest industry that we have in the world right now". None of these chemicals are environmentally friendly. Because there aren't any long term studies on the use of the products used today how can we, in good conscience, not knowing so very much about the impact to the lakes, underground waterways, food chains, and most important people, allow this industry into our community? We do know many of the hazardous chemicals used in the operation cause diseases to people,

animals, fish, not to mention the effects on farmland and water. How can we accept that?

We ask that you more than carefully evaluate the impact of Foxconn and the chemicals used in the processes to manufacture their products. We have always elevated the DNR because we trust the non-biased, non-political stewardship we've come to know for our natural resources. We need to know that the DNR will continue to protect current and future natural resources for our children and grandchildren.

I'd like to ask why are we even questioning the Great Lakes Water Compact when we know this is exactly the reason it was established? Our fresh water resource is not infinite. If this is approved, other companies (foreign and U.S. based) will use this approval as a precedence in requesting the same access to our fresh water system. This would be catastrophic! How will you legally be able to deny additional requests? As we add other industrial facilities how long will it be that the "Great t Lakes" will still be the great lakes?

Also, I've heard through these meeting that "there is no impact on the water levels". This is not true. We've had droughts, and **luckily** we've recovered. But no one can predict that this addition, along with other industrial approvals, will not impact the preservation of our natural resources (cumulative water contamination, along with underground waterways, wildlife and other eco conservation resources).

Foxconn is a private foreign industrial company whose water use will definitely not be used specifically for public or residential use (as stipulated in the Great Lakes Water Compact). Why is their use even a consideration? I've heard that some of the boundaries were altered to include a portion of this proposed property so that the water withdrawal would be made an exception (this may be just talk but it definitely does not make the consideration more palatable).

What about the sludge runoff that would potentially be buried on the premises? What is the actual impact of the ground water that will run into other rivers, possible impact to surrounding farm land and animals, wells, etc.?

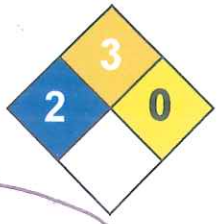
Knowing DNR staff limitation, I've attached several MSDS sheets on some of the more toxic chemicals Foxconn will use (along with marking other relative specific items).

Respectfully, please help keep our eco system (land and water) as clean as you've always strived to do by denying Foxconn's application.

Sincerely,

Linda DeLaney
5302 Vicksburg Dr.
Racine, WI 53403

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Benzene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Benzene

Catalog Codes: SLB1564, SLB3055, SLB2881

CAS#: 71-43-2

RTECS: CY1400000

TSCA: TSCA 8(b) inventory: Benzene

CI#: Not available.

Synonym: Benzol; Benzine

Chemical Name: Benzene

Chemical Formula: C6-H6

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Benzene	71-43-2	100

Toxicological Data on Ingredients: Benzene: ORAL (LD50): Acute: 930 mg/kg [Rat]. 4700 mg/kg [Mouse]. DERMAL (LD50): Acute: >9400 mg/kg [Rabbit]. VAPOR (LC50): Acute: 10000 ppm 7 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of inhalation. Hazardous in case of skin contact (irritant, permeator), of ingestion. Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. MUTAGENIC EFFECTS: Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE]. The substance is toxic to blood, bone marrow, central nervous system (CNS). The substance may be toxic to liver, Urinary System. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 497.78°C (928°F)

Flash Points: CLOSED CUP: -11.1°C (12°F). (Setaflash)

Flammable Limits: LOWER: 1.2% UPPER: 7.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of oxidizing materials. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Extremely flammable liquid and vapor. Vapor may cause flash fire. Reacts on contact with iodine heptafluoride gas. Dioxygenyl tetrafluoroborate is as very powerful oxidant. The addition of a small particle to small samples of benzene, at ambient temperature, causes ignition. Contact with sodium peroxide with benzene causes ignition. Benzene ignites in contact with powdered chromic anhydride. Virgorous or incandescent reaction with hydrogen + Raney nickel (above 210 C) and bromine trifluoride.

Special Remarks on Explosion Hazards:
Benzene vapors + chlorine and light causes explosion. Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate. Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion. Interaction

of nitryl perchlorate with benzene gave a slight explosion and flash. The solution of permanganic acid (or its explosive anhydride, dimaganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene. Peroxodisulfuric acid is a very powferful oxidant. Uncontrolled contact with benzene may cause explosion. Mixtures of peroxomonsulfuric acid with benzene explodes.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.5 STEL: 2.5 (ppm) from ACGIH (TLV) [United States] TWA: 1.6 STEL: 8 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.1 STEL: 1 from NIOSH TWA: 1 STEL: 5 (ppm) from OSHA (PEL) [United States] TWA: 10 (ppm) from OSHA (PEL) [United States] TWA: 3 (ppm) [United Kingdom (UK)] TWA: 1.6 (mg/m3) [United Kingdom (UK)] TWA: 1 (ppm) [Canada] TWA: 3.2 (mg/m3) [Canada] TWA: 0.5 (ppm) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor:
Aromatic. Gasoline-like, rather pleasant. (Strong.)

Taste: Not available.

Molecular Weight: 78.11 g/mole

Color: Clear Colorless. Colorless to light yellow.

pH (1% soln/water): Not available.

Boiling Point: 80.1 (176.2°F)

Melting Point: 5.5°C (41.9°F)

Critical Temperature: 288.9°C (552°F)

Specific Gravity: 0.8787 @ 15 C (Water = 1)

Vapor Pressure: 10 kPa (@ 20°C)

Vapor Density: 2.8 (Air = 1)

Volatility: Not available.

Odor Threshold: 4.68 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:
Miscible in alcohol, chloroform, carbon disulfide oils, carbon tetrachloride, glacial acetic acid, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatibles.

Incompatibility with various substances: Highly reactive with oxidizing agents, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Benzene vapors + chlorine and light causes explosion. Reacts explosively with bromine pentafluoride, chlorine, chlorine trifluoride, diborane, nitric acid, nitryl perchlorate, liquid oxygen, ozone, silver perchlorate. Benzene + pentafluoride and methoxide (from arsenic pentafluoride and potassium methoxide) in trichlorotrifluoroethane causes explosion. Interaction of nitryl perchlorate with benzene gave a slight explosion and flash. The solution of permanganic acid (or its explosive anhydride, dimaganese heptoxide) produced by interaction of permanganates and sulfuric acid will explode on contact with benzene. Peroxodisulfuric acid is a very powferful oxidant. Uncontrolled contact with benzene may cause explosion. Mixtures of peroxomonsulfuric acid with benzene explodes.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 930 mg/kg [Rat]. Acute dermal toxicity (LD50): >9400 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 10000 7 hours [Rat].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH, 1 (Proven for human.) by IARC. MUTAGENIC EFFECTS: Classified POSSIBLE for human. Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female [POSSIBLE]. Causes damage to the following organs: blood, bone marrow, central nervous system (CNS). May cause damage to the following organs: liver, Urinary System.

Other Toxic Effects on Humans:
Very hazardous in case of inhalation. Hazardous in case of skin contact (irritant, permeator), of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (female fertility, Embryotoxic and/or foetotoxic in animal) and birth defects. May affect genetic material (mutagenic). May cause cancer (tumorigenic, leukemia)) Human: passes the placental barrier, detected in maternal milk.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation. It can be absorbed through intact skin and affect the liver, blood, metabolism,and urinary system. Eyes: Causes eye irritation. Inhalation: Causes respiratory tract and mucous membrane irritation. Can be absorbed through the lungs. May affect behavior/Central and Peripheral nervous systems (somnolence, muscle weakness, general anesthetic, and other symptoms similar to ingestion), gastrointestinal tract (nausea), blood metabolism, urinary system. Ingestion: May be harmful if swallowed. May cause gastrointestinal tract irritation including vomiting. May affect behavior/Central and Peripheral nervous systems (convulsions, seizures, tremor, irritability, initial CNS stimulation followed by depression, loss of coordination, dizziness, headache, weakness, pallor, flushing), respiration (breathlessness and chest constriction), cardiovascular system, (shallow/rapid pulse), and blood.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Benzene UNNA: 1114 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Benzene California prop. 65 (no significant risk level): Benzene: 0.007 mg/day (value) California prop. 65: This product contains the following ingredients

for which the State of California has found to cause cancer which would require a warning under the statute: Benzene Connecticut carcinogen reporting list: Benzene Connecticut hazardous material survey.: Benzene Illinois toxic substances disclosure to employee act: Benzene Illinois chemical safety act: Benzene New York release reporting list: Benzene Rhode Island RTK hazardous substances: Benzene Pennsylvania RTK: Benzene Minnesota: Benzene Michigan critical material: Benzene Massachusetts RTK: Benzene Massachusetts spill list: Benzene New Jersey: Benzene New Jersey spill list: Benzene Louisiana spill reporting: Benzene California Director's list of Hazardous Substances: Benzene TSCA 8(b) inventory: Benzene SARA 313 toxic chemical notification and release reporting: Benzene CERCLA: Hazardous substances.: Benzene: 10 lbs. (4.536 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable. R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer. R62- Possible risk of impaired fertility. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S39- Wear eye/face protection. S46- If swallowed, seek medical advice immediately and show this container or label. S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:35 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Benzene environmental effects

What effect does benzene have on the environment? In the atmosphere, benzene can react with other chemicals to create **smog**. This could break down naturally but it might also attach to **rain** and **snow** and be carried to the ground to **contaminate water** and **soil**.May 26, 2014

If it is released
into soil it can break down quickly and may contaminate groundwater

Immediate signs and symptoms of exposure to benzene

- People who breathe in high levels of benzene may develop the following signs and symptoms within minutes to several hours:
  - Drowsiness
  - Dizziness
  - Rapid or irregular heartbeat
  - Headaches
  - Tremors
  - Confusion
  - Unconsciousness
  - Death (at very high levels)
- Eating foods or drinking beverages containing high levels of benzene can cause the following symptoms within minutes to several hours:
  - Vomiting
  - Irritation of the stomach
  - Dizziness
  - Sleepiness
  - Convulsions
  - Rapid or irregular heartbeat
  - Death (at very high levels)
- If a person vomits because of swallowing foods or beverages containing benzene, the vomit could be sucked into the lungs and cause breathing problems and coughing.
- Direct exposure of the eyes, skin, or lungs to benzene can cause tissue injury and irritation.
- Showing these signs and symptoms does not necessarily mean that a person has been exposed to benzene.

Long-term health effects of exposure to benzene

- The major effect of benzene from long-term exposure is on the blood. (Long-term exposure means exposure of a year or more.) Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection.

- Some women who breathed high levels of benzene for many months had irregular menstrual periods and a decrease in the size of their ovaries. It is not known whether benzene exposure affects the developing fetus in pregnant women or fertility in men.
- Animal studies have shown low birth weights, delayed bone formation, and bone marrow damage when pregnant animals breathed benzene.
- The Department of Health and Human Services (DHHS) has determined that benzene causes cancer in humans. Long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.

If you are exposed to benzene, many factors will determine whether you will be harmed. These factors include the dose (how much), the duration (how long), and how you come in contact with it. You must also consider any other chemicals you are exposed to and your age, sex, diet, family traits, lifestyle, and state of health.

Measured levels of benzene in outdoor air have ranged from 0.02 to 34 parts of benzene per billion parts of air (ppb) (1 ppb is 1,000 times less than 1 ppm). People living in cities or industrial areas are generally exposed to higher levels of benzene in air than those living in rural areas.

How can benzene affect my health?

Scientists use many tests to protect the public from harmful effects of toxic chemicals and to find ways for treating persons who have been harmed.

One way to learn whether a chemical will harm people is to determine how the body absorbs, uses, and releases the chemical. For some chemicals, animal testing may be necessary. Animal testing may also help identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method for getting information needed to make wise decisions that protect public health. Scientists have the responsibility to treat research animals with care and compassion. Scientists must comply with strict animal care guidelines because laws today protect the welfare of research animals.

After exposure to benzene, several factors determine whether harmful health effects will occur, as well as the type and severity of such health effects. These factors include the amount of benzene to which you are exposed and the length of time of the exposure. Most information on effects of long-term exposure to benzene are from studies of workers employed in industries that make or use benzene. These workers were exposed to levels of benzene in air far greater than the levels normally encountered by the general population. Current levels of benzene in workplace air are much lower than in the past. Because of this reduction and the availability of protective equipment such as respirators, fewer workers have symptoms of benzene poisoning.

Brief exposure (5ï¿½10 minutes) to very high levels of benzene in air (10,000ï¿½20,000 ppm) can result in death. Lower levels (700ï¿½3,000 ppm) can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. In most cases, people will stop feeling these effects when they are no longer exposed and begin to breathe fresh air.

Eating foods or drinking liquids containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, coma, and death. The health effects that may result from eating foods or drinking liquids containing lower levels of benzene are not known. If you spill benzene on your skin, it may cause redness and sores. Benzene in your eyes may cause general irritation and damage to your cornea.

Benzene causes problems in the blood. People who breathe benzene for long periods may experience harmful effects in the tissues that form blood cells, especially the bone marrow. These effects can disrupt normal blood production and cause a decrease in important blood components. A decrease in red blood cells can lead to anemia. Reduction in other components in the blood can cause excessive bleeding. Blood production may return to normal after exposure to benzene stops. Excessive exposure to benzene can be harmful to the immune system, increasing the chance for infection and perhaps lowering the body's defense against cancer.

Long-term exposure to benzene can cause cancer of the blood-forming organs. This condition is called leukemia. Exposure to benzene has been associated with development of a particular type of leukemia called acute myeloid leukemia (AML). The Department of Health and Human Services has determined that benzene is a known carcinogen (can cause cancer). Both the International Agency for Cancer Research and the EPA have determined that benzene is carcinogenic to humans.

Exposure to benzene may be harmful to the reproductive organs. Some women workers who breathed high levels of benzene for many months had irregular menstrual periods. When examined, these women showed a decrease in the size of their ovaries. However, exact exposure levels were unknown, and the studies of these women did not prove that benzene caused these effects. It is not known what effects exposure to benzene might have on the developing fetus in pregnant women or on fertility in men. Studies with pregnant animals show that breathing benzene has harmful effects on the developing fetus. These effects include low birth weight, delayed bone formation, and bone marrow damage.

We do not know what human health effects might occur after long-term exposure to food and water contaminated with benzene. In animals, exposure to food or water contaminated with benzene can damage the blood and the immune system and can cause cancer.

How can benzene affect my health?

Scientists use many tests to protect the public from harmful effects of toxic chemicals and to find ways for treating persons who have been harmed.

One way to learn whether a chemical will harm people is to determine how the body absorbs, uses, and releases the chemical. For some chemicals, animal testing may be necessary. Animal testing may also help identify health effects such as cancer or birth defects. Without laboratory animals, scientists would lose a basic method for getting information needed to make wise decisions that protect public health. Scientists have the responsibility to treat research animals with care and compassion. Scientists must comply with strict animal care guidelines because laws today protect the welfare of research animals.

After exposure to benzene, several factors determine whether harmful health effects will occur, as well as the type and severity of such health effects. These factors include the amount of benzene to which you are exposed and the length of time of the exposure. Most information on effects of long-term exposure to benzene are from studies of workers employed in industries that make or use benzene. These workers were exposed to levels of benzene in air far greater than the levels normally encountered by the general population. Current levels of benzene in workplace air are much lower than in the past. Because of this reduction and the availability of protective equipment such as respirators, fewer workers have symptoms of benzene poisoning.

Brief exposure (5ï¿½10 minutes) to very high levels of benzene in air (10,000ï¿½20,000 ppm) can result in death. Lower levels (700ï¿½3,000 ppm) can cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion, and unconsciousness. In most cases, people will stop feeling these effects when they are no longer exposed and begin to breathe fresh air.

Eating foods or drinking liquids containing high levels of benzene can cause vomiting, irritation of the stomach, dizziness, sleepiness, convulsions, rapid heart rate, coma, and death. The health effects that may result from eating foods or drinking liquids containing lower levels of benzene are not known. If you spill benzene on your skin, it may cause redness and sores. Benzene in your eyes may cause general irritation and damage to your cornea.

Benzene causes problems in the blood. People who breathe benzene for long periods may experience harmful effects in the tissues that form blood cells, especially the bone marrow. These effects can disrupt normal blood production and cause a decrease in important blood components. A decrease in red blood cells can lead to anemia. Reduction in other components in the blood can cause excessive bleeding. Blood production may return to normal after exposure to benzene stops. Excessive exposure to benzene can be harmful to the immune system, increasing the chance for infection and perhaps lowering the body's defense against cancer.

Long-term exposure to benzene can cause cancer of the blood-forming organs. This condition is called leukemia. Exposure to benzene has been associated with development of a particular type of leukemia called acute myeloid leukemia (AML). The Department of Health and Human Services has determined that benzene is a known carcinogen (can cause cancer). Both the International Agency for Cancer Research and the EPA have determined that benzene is carcinogenic to humans.

Exposure to benzene may be harmful to the reproductive organs. Some women workers who breathed high levels of benzene for many months had irregular menstrual periods. When examined, these women showed a decrease in the size of their ovaries. However, exact exposure levels were unknown, and the studies of these women did not prove that benzene caused these effects. It is not known what effects exposure to benzene might have on the developing fetus in pregnant women or on fertility in men. Studies with pregnant animals show that breathing benzene has harmful effects on the developing fetus. These effects include low birth weight, delayed bone formation, and bone marrow damage.

We do not know what human health effects might occur after long-term exposure to food and water contaminated with benzene. In animals, exposure to food or water contaminated with benzene can damage the blood and the immune system and can cause cancer.

top

1.6 How can benzene affect children?

This section discusses potential health effects in humans from exposures during the period from conception to maturity at 18 years of age.

Children can be affected by benzene exposure in the same ways as adults. Benzene can pass from the motherï¿½s blood to a fetus. It is not known if children are more susceptible to benzene poisoning than adults.

top

1.7 How can families reduce the risk of exposure to benzene?

If your doctor finds that you have been exposed to substantial amounts of benzene, ask whether your children might also have been exposed. Your doctor might need to ask your state health department to investigate.

Gasoline and cigarette smoke are two main sources of human exposure to benzene. Benzene exposure can be reduced by limiting contact with these sources. People are exposed to benzene from both active and passive second hand smoke. Average smokers take in about 10 times more benzene than nonsmokers each day. Families are encouraged not to smoke in their house, in enclosed environments, or near their children.

Benzene is a major component of gasoline and used in many manufacturing processes. Increased levels of benzene can be found at fueling stations, and in air emissions from manufacturing plants and hazardous waste sites. Living near gasoline fueling stations or hazardous waste sites may increase exposure to benzene. People are advised not to have their families play near fueling stations, manufacturing plants, or hazardous waste sites.

top

1.8 Is there a medical test to determine whether I have been exposed to benzene?

Several tests can show whether you have been exposed to benzene. Some of these tests may be available at your doctor's office. All of these tests are limited in what they can tell you. The test

for measuring benzene in your breath must be done shortly after exposure. This test is not very helpful for detecting very low levels of benzene in your body. Benzene can be measured in your blood. However, because benzene rapidly disappears in the blood, measurements may be useful only for recent exposures.

In the body, benzene is converted to products called metabolites. Certain metabolites of benzene, such as phenol, muconic acid, and S-phenylï¿½mercapturic acid can be measured in the urine. The amount of phenol in urine has been used to check for benzene exposure in workers. The test is useful only when you are exposed to benzene in air at levels of 10 ppm or greater. However, this test must also be done shortly after exposure, and it is not a reliable indicator of how much benzene you have been exposed to, because phenol is present in the urine from other sources (diet, environment). Measurements of muconic acid or S phenylmercapturic acid in the urine are more sensitive and reliable indicators of benzene exposure. The measurement of benzene in blood or of metabolites in urine cannot be used for making predictions about whether you will experience any harmful health effects. Blood counts of all components of the blood and examination of bone marrow are used to determine benzene exposure and its health effects.

For people exposed to relatively high levels of benzene, complete blood analyses can be used to monitor possible changes related to exposure. However, blood analyses are not useful when exposure levels are low.

1.9 What recommendations has the federal government made to protect human health?

The federal government develops regulations and recommendations to protect public health. Regulations *can* be enforced by law. The EPA, the Occupational Safety and Health Administration (OSHA), and the Food and Drug Administration (FDA) are some federal agencies that develop regulations for toxic substances. Recommendations provide valuable guidelines to protect public health, but *cannot* be enforced by law. The Agency for Toxic Substances and Disease Registry (ATSDR) and the National Institute for Occupational Safety and Health (NIOSH) are two federal organizations that develop recommendations for toxic substances.

Regulations and recommendations can be expressed as "not-to-exceed" levels, that is, levels of a toxic substance in air, water, soil, or food that do not exceed a critical value that is usually based on levels that affect animals; they are then adjusted to levels that will help protect humans. Sometimes these not-to-exceed levels differ among federal organizations because they used different exposure times (an 8-hour workday or a 24-hour day), different animal studies, or other factors.

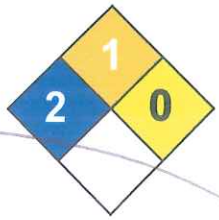
Recommendations and regulations are also updated periodically as more information becomes available. For the most current information, check with the federal agency or organization that provides it. Some regulations and recommendations for benzene include the following:

EPA has set 5 ppb as the maximum permissible level of benzene in drinking water. EPA has set a goal of 0 ppb for benzene in drinking water and in water such as rivers and lakes because benzene can cause leukemia. EPA estimates that 10 ppb benzene in drinking water that is consumed regularly or exposure to 0.4 ppb in air over a lifetime could cause a risk of one additional cancer case for every 100,000 exposed persons. EPA recommends 200 ppb as the maximum permissible level of benzene in water for short-term exposures (10 days) for children.

EPA requires that the National Response Center be notified following a discharge or spill into the environment of 10 pounds or more of benzene.

OSHA regulates levels of benzene in the workplace. The maximum allowable amount of benzene in workroom air during an 8-hour workday, 40-hour workweek is 1 ppm. Because benzene can cause cancer, NIOSH recommends that all workers wear special breathing equipment when they are likely to be exposed to benzene at levels exceeding the recommended (8-hour) exposure limit of 0.1 ppm.

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Copper MSDS

Section 1: Chemical Product and Company Identification

Product Name: Copper

Catalog Codes: SLC4939, SLC2152, SLC3943, SLC1150, SLC2941, SLC4729, SLC1936, SLC3727, SLC5515

CAS#: 7440-50-8

RTECS: GL5325000

TSCA: TSCA 8(b) inventory: Copper

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: Cu

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Copper	7440-50-8	100

Toxicological Data on Ingredients: Copper LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH [1990] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 63.54 g/mole

Color: Not available.

pH (1% soln/water): Not applicable.

Boiling Point: 2595°C (4703°F)

Melting Point: 1083°C (1981.4°F)

Critical Temperature: Not available.

Specific Gravity: 8.94 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Copper Massachusetts RTK: Copper TSCA 8(b) inventory: Copper CERCLA: Hazardous substances.: Copper

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36- Irritating to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 04:58 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Copper

Effects

Long-term exposure to copper can cause irritation of the nose, mouth and eyes and it causes headaches, stomachaches, dizziness, vomiting and diarrhea. Intentionally high uptakes of copper may cause liver and kidney damage and even death. Whether copper is carcinogenic has not been determined yet.

There are scientific articles that indicate a link between long-term exposure to high concentrations of copper and a decline in intelligence with young adolescents. Whether this should be of concern is a topic for further investigation.

Industrial exposure to copper fumes, dusts, or mists may result in metal fume fever with atrophic changes in nasal mucous membranes. Chronic copper poisoning results in Wilson's Disease, characterized by a hepatic cirrhosis, brain damage, demyelization, renal disease, and copper deposition in the cornea.

Environmental effects of copper

When copper ends up in soil it strongly attaches to organic matter and minerals. As a result it does not travel very far after release and it hardly ever enters groundwater. In surface water copper can travel great distances, either suspended on sludge particles or as free ions.

Copper does not break down in the environment and because of that it can accumulate in plants and animals when it is found in soils. On copper-rich soils only a limited number of plants has a chance of survival. That is why there is not much plant diversity near copper-disposing factories. Due to the effects upon plants copper is a serious threat to the productions of farmlands. Copper can seriously influence the proceedings of certain farmlands, depending upon the acidity of the soil and the presence of organic matter. Despite of this, copper-containing manures are still applied.

Copper can interrupt the activity in soils, as it negatively influences the activity of microorganisms and earthworms. The decomposition of organic matter may seriously slow down because of this.

When the soils of farmland are polluted with copper, animals will absorb concentrations that are damaging to their health. Mainly sheep suffer a great deal from copper poisoning, because the effects of copper are manifesting at fairly low concentrations.

Read more: https://www.lenntech.com/periodic/elements/cu.htm#ixzz59vku8aZP

Aquatic life

Elevated levels of copper are toxic in aquatic environments and may adversely affect fish, invertebrates, plants, and amphibians. Acute toxic effects may include mortality of organisms; chronic toxicity can result in reductions in survival, reproduction, and growth. (EPA, 2008)

Human Toxicity

Copper is a metal that occurs naturally in the environment, and also in plants and animals. Low levels of copper are essential for maintaining good health.

High levels of copper can be harmful. Breathing high levels of copper can cause irritation of the nose and throat. Ingesting high levels of copper can cause nausea, vomiting, and diarrhea. Very-high doses of copper can cause damage to the liver and kidneys, and can even cause death. (U.S. Department of Health and Human Services, 2004

Cancer: There is no evidence that copper is carcinogenic

Alzheimer's disease: Elevated free copper levels exist in Alzheimer's disease (Brewer GJ, Clin Neurophysiol. 2010)

Nitrogen trifluoride

Safety Data Sheet P-4854

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Date of issue: 01/01/1985 Revision date: 10/24/2016 Supersedes: 07/21/2015

SECTION: 1. Product and company identification

1.1. Product identifier

Product form	:	Substance
Name	:	Nitrogen trifluoride
CAS No	:	7783-54-2
Formula	:	F3N
Other means of identification	:	Nitrogen Fluoride, Trifluoroamine, Trifluoroammonia Chemical Family = Inorganic Halide

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet

Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number

Emergency number	:	Onsite Emergency: 1-800-645-4633 CHEMTREC, 24hr/day 7days/week — Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887 (collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification

Ox. Gas 1	H270
Compressed gas	H280
Acute Tox. 4 (Inhalation:gas)	H332
STOT RE 2	H373

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS03 GHS04 GHS07 GHS08

Signal word (GHS-US) : DANGER

Hazard statements (GHS-US) :
H270 - MAY CAUSE OR INTENSIFY FIRE; OXIDIZER
H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
H332 - HARMFUL IF INHALED
H371 - MAY CAUSE DAMAGE TO ORGANS (KIDNEYS, LIVER, SPLEEN, CENTRAL NERVOUS SYSTEM)
CGA-HG10 - ASPHYXIATING EVEN WITH ADEQUATE OXYGEN
CGA-HG11 - SYMPTOMS MAY BE DELAYED

Precautionary statements (GHS-US) :
P202 - Do not handle until all safety precautions have been read and understood
P220 - Keep/Store away from clothing, combustible materials
P244 - Keep reduction valves/valves and fittings free from oil and grease
P260 - Do not breathe gas
P271+P403 - Use and store only outdoors or in a well-ventilated place

P370+P376 - In case of fire: Stop leak if safe to do so
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG20+CGA-PG10 - Use only with equipment of compatible materials of construction and rated for cylinder pressure
CGA-PG22 - Use only with equipment cleaned for oxygen service
CGA-PG21 - Open valve slowly
CGA-PG06 - Close valve after each use and when empty
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name	Product identifier	%
Nitrogen trifluoride (Main constituent)	(CAS No) 7783-54-2	100

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : Wash with plenty of soap and water. If irritation persists, consult a doctor.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

CONTACT WITH THIS PRODUCT REQUIRES IMMEDIATE MEDICAL ATTENTION! Symptoms may be delayed. Seek medical attention even if no symptoms are present.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Oxidizer. May accelerate the burning of other combustible materials.

Reactivity : MAY INTENSIFY FIRE; OXIDIZER.

5.3. Advice for firefighters

Firefighting instructions : Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

Special protective equipment for fire fighters : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems

Stop flow of product if safe to do so

Use water spray or fog to knock down fire fumes if possible.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : **DANGER: High-pressure, oxidizing gas.** Evacuate personnel to a safe area. Appropriate self-contained breathing apparatus may be required. Remove all sources of ignition. Vapor can spread from spill. Contact with flammable materials may cause fire or explosion. When containers have cooled, move them away from fire area if safe to do so. Before entering the area, especially a confined area, check the atmosphere with an appropriate device. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Try to stop release. Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Methods and material for containment and cleaning up

For containment : On land, sweep or shovel into suitable containers.

6.4. Reference to other sections

See also sections 8 and 13. See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not breathe gas/vapor. Avoid all contact with skin, eyes, or clothing. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure

Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only where temperature will not exceed 125°F (52°C). Post "No Smoking/No Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Nitrogen trifluoride (7783-54-2)		
ACGIH	ACGIH TLV-TWA (ppm)	10 ppm
USA OSHA	OSHA PEL (TWA) (mg/m³)	29 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	10 ppm
USA IDLH	US IDLH (ppm)	1000 ppm

8.2. Exposure controls

Appropriate engineering controls : Use corrosion-proof equipment. A canopy-type, forced-draft fume hood is preferred. Provide adequate general and local exhaust ventilation.

Hand protection : Wear working gloves when handling gas containers.

Eye protection : Wear safety glasses with side shields. Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Respiratory protection : When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere.

Other information : Do not eat, drink or smoke during use. Wear safety shoes while handling containers.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Molecular mass : 71 g/mol

Color : Colorless.

Odor : Moldy.

Odor threshold : No data available

pH : Not applicable.

Relative evaporation rate (butyl acetate=1) : No data available

Relative evaporation rate (ether=1) : Not applicable.

Melting point	: -207 °C
Freezing point	: No data available
Boiling point	: -129 °C
Flash point	: Not applicable.
Critical temperature	: -39.3 °C
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 33400 mm Hg (at -50 °C)
Critical pressure	: 4460 kPa
Relative vapor density at 20 °C	: No data available
Relative density	: 1.5
Relative gas density	: 2.4
Solubility	: Water: 61 mg/l
Log Pow	: Not applicable for inorganic gases.
Log Kow	: No data available
Viscosity, kinematic	: Not applicable.
Viscosity, dynamic	: Not applicable.
Explosive properties	: Not applicable.
Oxidizing properties	: Oxidizer.
Explosion limits	: Non flammable.

9.2. Other information

Additional information : Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

MAY INTENSIFY FIRE; OXIDIZER.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May occur. On decomposition may produce fumes of fluorides. The presence of certain metals at elevated temperatures may form tetrafluorohydrazine (N2F4), a material sensitive to heat and shock.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

Diborane. Hydrogen. Hydrogen sulfide. Methane. Tetrafluorohydrazine. Natural rubber. Avoid oil, grease and all other combustible materials. Reducing agents. May react violently with combustible materials. Carbon dioxide. Ammonia.

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation:gas: HARMFUL IF INHALED.

Nitrogen trifluoride (\f)7783-54-2	
LC50 inhalation rat (ppm)	6700 ppm/1h
ATE US (gases)	3350.000 ppmV/4h

Skin corrosion/irritation	:	Not classified pH: Not applicable.
Serious eye damage/irritation	:	Not classified pH: Not applicable.
Respiratory or skin sensitization	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity (single exposure)	:	Not classified
Specific target organ toxicity (repeated exposure)	:	MAY CAUSE DAMAGE TO ORGANS THROUGH PROLONGED OR REPEATED EXPOSURE.
Aspiration hazard	:	Not classified
Potential Adverse human health effects and symptoms	:	HARMFUL IF INHALED.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No data available.

12.2. Persistence and degradability

Nitrogen trifluoride (7783-54-2)	
Persistence and degradability	Not applicable for inorganic gases. Not established.

12.3. Bioaccumulative potential

Nitrogen trifluoride (7783-54-2)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No data available. Not established.

12.4. Mobility in soil

Nitrogen trifluoride (7783-54-2)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Effect on ozone layer : None

Global warming potential [CO2=1] : 17200

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Do not discharge into any place where its accumulation could be dangerous.

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

Additional information : None.

SECTION 14: Transport information

In accordance with DOT

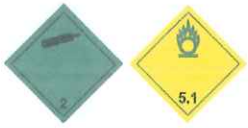
Transport document description : UN2451 Nitrogen trifluoride, 2.2

UN-No.(DOT) : UN2451

Proper Shipping Name (DOT) : Nitrogen trifluoride

Class (DOT) : 2.2 - Class 2.2 - Non-flammable compressed gas 49 CFR 173.115

Hazard labels (DOT) : 2.2 - Non-flammable gas
5.1 - Oxidizer



Additional information

Emergency Response Guide (ERG) Number : 122

Other information : No supplementary information available.

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG) : 2451

Proper Shipping Name (IMDG) : NITROGEN TRIFLUORIDE

Class (IMDG) : 2 - Gases

MFAG-No : 122

Air transport

UN-No. (IATA) : 2451

Proper Shipping Name (IATA) : Nitrogen trifluoride

Class (IATA) : 2

Civil Aeronautics Law : Gases under pressure/Gases nonflammable nontoxic under pressure

SECTION 15: Regulatory information

15.1. US Federal regulations

Nitrogen trifluoride (7783-54-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Fire hazard Sudden release of pressure hazard

15.2. International regulations

CANADA

Nitrogen trifluoride (7783-54-2)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Nitrogen trifluoride (7783-54-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Nitrogen trifluoride (7783-54-2)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

Nitrogen trifluoride(7783-54-2)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Other information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation

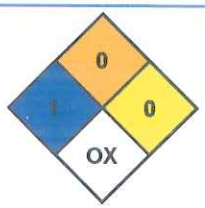
When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product

Praxair SDSs are furnished on sale or delivery by Praxair or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your Praxair sales representative, local distributor, or supplier, or download from www.praxair.com. If you have questions regarding Praxair SDSs, would like the document number and date of the latest SDS, or would like the names of the Praxair suppliers in your area, phone or write the Praxair Call Center (Phone: 1-800-PRAXAIR/1-800-772-9247; Address: Praxair Call Center, Praxair, Inc, P.O. Box 44, Tonawanda, NY 14151-0044)

NFPA health hazard	: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
NFPA specific hazard	: OX - This denotes an oxidizer, a chemical which can greatly increase the rate of combustion/fire.



HMIS III Rating

Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 0 Minimal Hazard
Physical	: 3 Serious Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Nitrogen Trifluoride Environmental Effects

Environmental and health effects of nitrogen oxides

Elevated levels of nitrogen dioxide can cause damage to the human respiratory tract and increase a person's vulnerability to, and the severity of, respiratory infections and asthma.

Long-term exposure to high levels of nitrogen dioxide can cause chronic lung disease.

It may also affect the senses, for example, by reducing a person's ability to smell an odour.

High levels of nitrogen dioxide are also harmful to vegetation—damaging foliage, decreasing growth or reducing crop yields.

Nitrogen dioxide can fade and discolour furnishings and fabrics, reduce visibility, and react with surfaces.

Air quality standard

The recommended air quality standards for nitrogen dioxide are:

- 0.12 parts per million (ppm) for a 1-hour exposure period
- 0.03ppm for an annual exposure period.

These standards are designed to protect sensitive individuals, such as children and asthmatics.

Typical outdoor nitrogen dioxide levels are well below the 1-hour standard and exposure at these levels does not generally increase respiratory symptoms.

Environmental effects

NO_2 and other NO_x interact with water, oxygen and other chemicals in the atmosphere to form acid rain. Acid rain harms sensitive ecosystems such as lakes and forests.

The Effects of Acid Rain on Ecosystems

This figure illustrates the pH level at which key organisms may be lost as their environment becomes more acidic. Not all fish, shellfish, or the insects that they eat can tolerate the same amount of acid.

An ecosystem is a community of plants, animals and other organisms along with their environment including the air, water and soil. Everything in an ecosystem is connected. If something harms one part of an ecosystem – one species of plant or animal, the soil or the water – it can have an impact on everything else.

Effects of Acid Rain on Fish and Wildlife

The ecological effects of acid rain are most clearly seen in aquatic environments, such as streams, lakes, and marshes where it can be harmful to fish and other wildlife. As it flows through the soil, acidic rain water can leach aluminum from soil clay particles and then flow into streams and lakes. The more acid that is introduced to the ecosystem, the more aluminum is released.

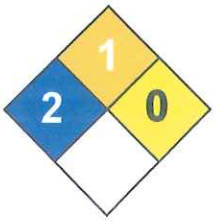
Some types of plants and animals are able to tolerate acidic waters and moderate amounts of aluminum. Others, however, are acid-sensitive and will be lost as the pH declines. Generally, the young of most species are more sensitive to environmental conditions than adults. At pH 5, most fish eggs cannot hatch. At lower pH levels, some adult fish die. Some acidic lakes have no fish. Even if a species of fish or animal can tolerate moderately acidic water, the animals or plants it eats might not. For example, frogs have a critical pH around 4, but the mayflies they eat are more sensitive and may not survive pH below 5.5.

Effects of Acid Rain on Plants and Trees

Dead or dying trees are a common sight in areas effected by acid rain. Acid rain leaches aluminum from the soil. That aluminum may be harmful to plants as well as animals. Acid rain also removes minerals and nutrients from the soil that trees need to grow.

At high elevations, acidic fog and clouds might strip nutrients from trees' foliage, leaving them with brown or dead leaves and needles. The trees are then less able to absorb sunlight, which makes them weak and less able to withstand freezing temperatures.

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	2
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Indium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Indium

Catalog Codes: SLI1033

CAS#: 7440-74-6

RTECS: NL1050000

TSCA: TSCA 8(b) inventory: Indium

CI#: Not applicable.

Synonym:

Chemical Name: Indium

Chemical Formula: In

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Indium	7440-74-6	100

Toxicological Data on Ingredients: Indium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), .

Potential Chronic Health Effects:
Hazardous in case of ingestion. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: PROVEN The substance is toxic to blood, kidneys, the reproductive system, liver, heart, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: No known effect on eye contact, rinse with water for a few minutes.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.1 (mg/m3) from OSHA (PEL) TWA: 0.1 (mg/m3) from ACGIHConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Odorless.

Taste: Not available.

Molecular Weight: 114.82 g/mole

Color: Not available.

pH (1% soln/water): Not applicable.

Boiling Point: 2000°C (3632°F)

Melting Point: 156.17°C (313.1°F)

Critical Temperature: Not available.

Specific Gravity: 7.31 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Is not dispersed in cold water, hot water.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
DEVELOPMENTAL TOXICITY: PROVEN The substance is toxic to blood, kidneys, the reproductive system, liver, heart, upper respiratory tract, skin, eyes.

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant), .

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal: nothing ??

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Metal Powder, Flammable, n.o.s.(Indium Powder) : UN3089 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Indium Pennsylvania RTK: Indium Florida: Indium Minnesota: Indium Massachusetts RTK: Indium New Jersey: Indium TSCA 8(b) inventory: Indium

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R37- Irritating to respiratory system.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:49 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Indium Tin Oxide (ITO) and Indium Oxide

Cases of interstitial lung disease and pulmonary alveolar proteinosis have been reported in ITO- and indium oxide-exposed workers in Japan, the United States, and China; two cases subsequently died from lung disease.[3,4] Cough and dyspnea were commonly reported at diagnosis. Animal studies as early as the 1960s[36] and more recently[31,43–46] have shown lung effects, including inflammation, alveolar proteinosis, and interstitial fibrotic changes, after inhalational or intratrachel exposure to indium oxide and indium tin oxide consistent with the human cases. Repeated inhalational exposure to ITO at or below 0.1 mg/m^3 produced a significant increase in malignant lung tumors in rats.[47] Epidemiology studies in Japan[23,48,49] and in Taiwan[50] of workers exposed to ITO and indium oxide have also shown associations between serum indium levels and biomarkers of interstitial lung disease.

Occupational Exposure

–

Greatest potential for exposure is due to industrial use, particularly as the use of ITO in the production of LCDs increases (Homma et al., 2003 , 2005).

–

The primary routes of exposure are inhalation, ingestion, and eye and skin contact (Swarts [Indium Corp. of America], 2006). Workers handling powdered ITO or engaged in machining, polishing, or wet grinding of ITO targets after compaction may inhale ITO. [Workers in Japan engaged in wet grinding of targets have developed mild to severe interstitial lung disease despite respiratory protection (e.g., Homma et al., 2003 , 2005).]

General Population Exposure

Foods and Beverages, Cosmetics, etc.:
Not available
Ambient Environment:
Not available
Environmental Occurrence
Natural Occurrence:
Not known to occur naturally
U.S. Environmental Releases:
Not available
Concentrations in Environmental Media:
Not available