

PROPOSAL FOR SCRAP TRANSFORMER IMPORTATION

Background

Transformers generally can be classified to two types namely dry and oil cooled transformers. This paper would primarily focus on oil cooled transformers attributed to its insulating fluids that it may be contaminated with hazardous pollutants in accordance with Basel definition.

The purpose of this paper is to propose importation of oil cooled scrap transformers with justification that such importation do not cause any adverse impact to the environment and it is in compliance with Basel definition, Custom (Prohibition of Imports) Order 2017 and Schedule 1 of Environmental Quality (Scheduled Wastes) (Amendment) Regulations 2007 ***when the transformer oil had been drained off and de-pollution process had been fully performed.***

Title		Descriptions	
1	Designation	Oil cooled / liquid filled / wet transformers, hereinafter refers as "oil transformer".	
2	Descriptions	<p>As the name suggested, oil cooled transformer utilises transformer oil or insulating oil to insulate, suppress corona discharge and arcing, and to serve as a coolant to transformer.</p> <p>Prior to being one of the initial twelve (12) persistent organic pollutants ("POP") restricted under the Stockholm Convention in 1980, Polychlorinated Biphenyls (PCBs), a form of synthetic chlorinated organic chemicals, was widely used as insulating fluid in oil transformer since they have high dielectric strength and are not flammable.</p> <p>Subsequent to the ban, mineral oil had replaced PCBs as major transformer oil. However, in view of longer life expectancy of PCBs transformer of approximately 40 years, due diligence has been enforced on transformer disposal.</p> <p>To date, it is essential to identify and ascertain if the transformer is PCBs-contaminated during the process of disposal.</p>	
3	Hazardous Substances	a)	Polychlorinated Biphenyls (PCBs)
		b)	Mineral Oil



4	Applicable Basel Codes	<p>Polychlorinated Biphenyls (PCBs)</p> <p>In accordance with Basel Convention General Technical Guidelines for the Environmentally Sound Management of Wastes Consisting of, Containing or Contaminated with Persistent Organic Pollutants (POPs), the following List A of Annex VIII are applicable to PCBs:</p> <p>a) A1180</p> <p><i>Waste electrical and electronic assemblies or scrap¹ containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B B1110)²</i></p> <p>¹ This entry does not include scrap assemblies from electric power generation.</p> <p>² PCBs are at a concentration level of 50 mg/kg or more.</p> <p>b) A3180</p> <p><i>Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), polychlorinated naphthalene (PCN) or polybrominated biphenyl (PBB), or any other polybrominated analogues of these compounds, at a concentration level of 50 mg/kg or more³</i></p> <p>³ The 50 mg/kg level is considered to be an internationally practical level for all wastes. However, many individual countries have established lower regulatory levels (e.g., 20 mg/kg) for specific wastes.</p> <p>Whereas, applicable List B of Annex IX that mentioned about PCBs is as follows:</p> <p>a) B1040</p> <p><i>Scrap assemblies from electrical power generation not contaminated with lubricating oil, PCB or PCT to an extent to render them hazardous</i></p> <p>Mineral Oil</p> <p>Mineral oil is defined in Annex I under Y8 coding as “waste mineral oils unfit for their originally intended use”. As such, it was further classified in List A of Annex VIII as follows:</p>
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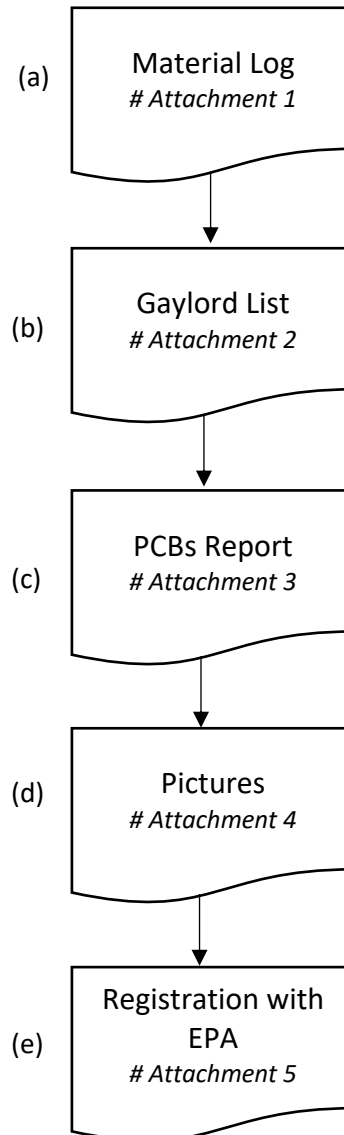


		<p>a) A3020</p> <p><i>Waste mineral oils unfit for their originally intended use</i></p> <p>b) A4060</p> <p><i>Waste oils/water, hydrocarbons/water mixtures, emulsions</i></p> <p>Mineral oil that contained in scrap transformer, when it is unfit for originally intended use as insulating fluid, it would be classified as hazardous waste. However, if mineral oil was previously used in retrofilling, hazardous assessment shall take into account its PCBs concentration level relatively. On the other hand, A4060 that emphasizes on mixture content and emulsion may not be applicable for scrap transformer importation.</p> <p>Similarly to treaty of PCBs, applicable List B of Annex IX that mentioned about mineral oil is as follows:</p> <p>a) B1040</p> <p><i>Scrap assemblies from electrical power generation not contaminated with lubricating oil, PCB or PCT to an extent to render them hazardous</i></p> <p>In determining the extent of mineral oil would have rendered scrap assemblies hazardous, such magnitude was not defined in Basel Convention. Indeed, it is at the prerogative of each nation. General accepted threshold that is widely used by Basel signatories is 0.1% of total weight of scrap assemblies.</p>
5.	Applicable SW Codes	<p>Polychlorinated Biphenyls (PCBs)</p> <p>a) SW 318</p> <p><i>Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCB) or polychlorinated triphenyls (PCT)</i></p> <p>Mineral Oil</p> <p>In Malaysia, waste oil is classified as scheduled wastes under the First Schedule of the Environmental Quality (Scheduled Wastes) (Amendment) Regulations 2007. Accordingly, there are a few codes that dealt with waste oil as append below:</p> <p>a) SW 305 <i>Spent lubricating oil</i></p> <p>b) SW 306 <i>Spent hydraulic oil</i></p>

		<ul style="list-style-type: none"> c) SW 307 <i>Spent mineral oil-water emulsion</i> d) SW 308 <i>Oil tanker sludges</i> e) SW 309 <i>Oil-water mixture such as ballast water</i> f) SW 310 <i>Sludge from mineral oil storage tank</i> g) SW 311 <i>Waste oil or oily sludges</i> h) SW 312 <i>Oily residue from automotive workshop, service station oil or grease interceptor</i> i) SW 314 <i>Oil or sludge from oil refinery or petrochemical plant</i> j) SW 408 <i>Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes</i> k) SW409 <i>Disposed containers, bas or equipment contaminated with chemicals, pesticides, mineral oil or schedule waste</i>
6.	Threshold	<p>Polychlorinated Biphenyls (PCBs)</p> <p>Reference is made to <i>Point (4) of Applicable Basel Codes</i> in this paper on treaty of PCBs and it is proposed that allowable tolerance to be set at concentration level of 50mg/Kg or less.</p> <p>Mineral Oil</p> <p>It is proposed to set at 0.1% of total weight of scrap assemblies that is widely applied by Basel signatories.</p> <p>Despite the fact that PCBs and Mineral Oil are identified hazardous pollutants in scrap transformers, importation of scrap transformers that was within the threshold mentioned above are in accordance with general practices and it would not have possessed adverse impact to our health and environment.</p>
7.	HS Code	740400: Copper Scrap

8. De-Pollution

It is industrial practices that for exportation of scrap transformers, such transformer needs to go through de-pollution / de-contamination process. Scrap transformers that have been certified under de-pollution process would be tested if the concentration level of Polychlorinated Biphenyls (PCBs) is kept below allowable threshold of 50ppm. Below is an illustration of process flow for tracing scrap transformers in the container to their respective PCBs Report.



a) Material Log – Please refer to Attachment (1)

Material log would spell out container no., shipping details and list of gaylord in the container. In this case, there are eight gaylords in container CMAU1924472. Each gaylord is identified with four digits for example 6462 as shown in Attachment 1.

		<p>b) Gaylord List – Please refer to Attachment (2)</p> <p><i>Gaylord list would list down each core coil (with bar code) contained in each gaylord and summary of the test result. For example, gaylord with box number 6462 contained 14 items. Among others is core coil of 1 phase pole transformer that carries bar code number 00052886 that was tested on 9 June 2019 with PCBs ppm at 28ppm.</i></p> <p>c) PCBs Report – Please refer to Attachment (3)</p> <p><i>PCBs Report contains a list of core coils identified by bar code number and test results. The oil sample is tested according to 4 methods (standards): Arcoclor 1242, Arcolor 1254, Arcolor 1260, Arcolor other. As you can see the test results varies from one method to another. These results would be added together as can be seen in 00052886R with total ppm sum up at 28ppm. As highlighted from PCB Report, PCBs testing was made for licensed processor FT LLC dba Emerald Transformer.</i></p> <p>d) Pictures – Please refer to Attachment (4)</p> <p><i>The picture will show how they identified the bar code of core coil from each gaylord that goes into a container.</i></p> <p>e) Registration with Environment Protection Agency (EPA) - Please refer to Attachment (5)</p> <p><i>This is a registration certificate issued by Florida Department of Environmental Protection to Florida Transformer LLC dba Emerald Transformer as a licensed processor.</i></p>
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Conclusion

The paper has detailed out hazardous aspect of oil transformers and proposed widely accepted threshold to comply with transboundary movement of hazardous waste and their disposal. Accordingly, there are two possible hazardous waste identified in accordance with applicable Basel classification and Environmental Quality (Scheduled Wastes) (Amendment) Regulations 2007 in Malaysia.

In addition, the paper has suggested an alternate method to ensure that Polychlorinated Biphenyls (PCBs) contained in oil transformers (if any) are being kept below the threshold subsequent to the de-pollution process and the concentration level has been certified by PCBs Report prior to exportation that it is capable to trace from scrap transformers in the container to its licensed processor and respective test results.

We are therefore would like to propose Authorities to adopt PCBs Report for the purpose of allowing scrap transformers to be imported to Malaysia under HS Code 740400 at threshold that have been stipulated in Basel Convention.

Attachment 1

MATERIAL LOG							
Container #	Truck #	Date Shipped	Sold To		Seal #	Trucking Company	
CMAU1924472	190	9/23/2019	Core Metals		C3920943	Chickasaw / CCS	
Item #	Material Type	Description	Gross	Tare	Net		
6453	al/cu C&C	box	6142	158	5984		
6461	al/cu C&C	box	5650	155	5495		
6462	al/cu C&C	box	5872	156	5716		
6465	al/cu C&C	box	5750	162	5588		
6466	al/cu C&C	box	5427	159	5268		
6427	al/cu C&C	box	5670	150	5520		
6396	al/cu C&C	box	5854	160	5694		
6478	al/cu C&C	box	5735	155	5580		
Totals			46100	1255	44845		
Booking # :	AYU0299924	P.O.D.	Penang		Date:	09/23/19	
Loaded By :	Zach P.	P.O. #	F2369				

Attachment 2

Job Transaction ID	Dept Code	Job Type Description	Screen Test	Cert No	PCB PPM	Test Date
Box Number 6478						
00052393	Decom	1 Phase Pole Transformer	NPD			
00052397	Decom	1 Phase Pole Transformer	NPD			
00052413	Decom	1 Phase Pole Transformer	CC	66831	0.1	8/19/2019
00052667	Decom	1 Phase Pole Transformer	GC	00052667	0.1	9/5/2019
00052675	Decom	1 Phase Pole Transformer	GC	00052675	2	9/5/2019
00052693	Decom	Auto Booster	GC	00052693	6	9/5/2019
00052695	Decom	Auto Booster	NPD			
00052928	Decom	1 Phase Pole Transformer	NPD			
00052929	Decom	1 Phase Pole Transformer	GC	00052929	0.1	9/9/2019
00052939	Decom	1 Phase Pole Transformer	GC	00052939	0.1	9/9/2019
00052983	Decom	1 Phase Pole Transformer	NPD			
00052984	Decom	1 Phase Pole Transformer	NPD			
00052985	Decom	1 Phase Pole Transformer	NPD			
00052986	Decom	1 Phase Pole Transformer	GC	00052986	0.1	9/10/2019
00052987	Decom	1 Phase Pole Transformer	NPD			
00053069	Decom	1 Phase Pole Transformer	NPD			
00053101	Decom	1 Phase Pole Transformer	NPD			
00053112	Decom	1 Phase Pole Transformer	GC	00053112	0.1	9/9/2019
00053114	Decom	1 Phase Pole Transformer	NPD			
00053122	Decom	1 Phase Pole Transformer	CC	999999	0.1	3/15/2019
00053173	Decom	1 Phase Pole Transformer	GC	00053173	0.1	9/11/2019
00053212	Decom	1 Phase Pole Transformer	NPD			
00053215	Decom	1 Phase Pole Transformer	NPD			
00053216	Decom	1 Phase Pole Transformer	NPD			
00053232	Decom	1 Phase Pole Transformer	NPD			
00053235	Decom	1 Phase Pole Transformer	NPD			
00053237	Decom	1 Phase Pole Transformer	GC	00053237	0.1	9/9/2019
Box Number 6462						
00051326	Decom	1 Phase Pad Transformer	NPD			
00052047	Decom	1 Phase Pad Transformer	NPD			
00052051	Decom	1 Phase Pad Transformer	GC	00052051	0.1	9/3/2019
00052500	Decom	1 Phase Pole Transformer	NPD			
00052503	Decom	1 Phase Pole Transformer	NPD			
00052504	Decom	1 Phase Pole Transformer	NPD			
00052869	Decom	1 Phase Pole Transformer	NPD			
00052878	Decom	1 Phase Pole Transformer	NPD			
00052886	Decom	1 Phase Pole Transformer	GC	00052886	28	9/6/2019
00052911	Decom	Auto Booster	GC	00052911	0.1	9/6/2019
00052912	Decom	Auto Booster	GC	00052912	13	9/6/2019
00052913	Decom	Auto Booster	GC	00052913	4	9/6/2019
00052914	Decom	1 Phase Pole Transformer	GC	00052914	8	9/6/2019
00052915	Decom	Auto Booster	GC	00052915	0.1	9/6/2019
Box Number 6454						
00052045	Decom	1 Phase Pad Transformer	NPD			
00052050	Decom	1 Phase Pad Transformer	NPD			
00052498	Decom	1 Phase Pole Transformer	NPD			
00052519	Decom	1 Phase Pole Transformer	NPD			
00052795	Decom	1 Phase Pole Transformer	GC	00052795	0.1	9/6/2019
00052800	Decom	1 Phase Pole Transformer	GC	00052800	0.1	9/6/2019
00052808	Decom	1 Phase Pad Transformer	GC	00052808	0.1	9/6/2019



Attachment 3

11/1/2019

eo.emeraldtransformer.com/PCB/Print.aspx?batchid=13248&MinDispVal=1

PCB Report

FT LLC dba Emerald Transformer

Phone (850) 892-2711

4509 State Hwy 83 N
DeFuniak Springs, FL, 32433

Report # 090619

Date Analyzed: 9/6/2019 11:21:00 AM

Method: EPA SW-846 Method 8082

Barcode	Serial Number	Aroclor 1242	Aroclor 1254	Aroclor 1260	Aroclor Other	Total Conc (PPM)	Customer ID	Comments
00052795R		0	0	0	0	< 1		
00052800R		0	0	0	0	< 1		
00052808R		0	0	0	0	< 1		
00052830R		0	0	0	0	< 1		
00052832R		0	0	0	0	< 1		
00052873R		0	0	0	0	< 1		
00052880R		0	0	0	0	< 1		
00052882R		0	0	0	0	< 1		
00052886R		6	0	22	0	28		
00052889R		0	11	0	0	11		
00052904R		0	0	0	0	< 1		
00052907R		0	0	0	0	< 1		
00052909R		0	0	0	0	< 1		
00052911R		0	0	0	0	< 1		
00052912R		0	0	13	0	13		
00052913R		0	0	4	0	4		
00052914R		0	8	0	0	8		
00052915R		0	0	0	0	< 1		
Sample Count: 18 of 18 Samples								

Provided for Customer
FTI DBA EMERALD
TRANSFORMER
Load: N/A
Re-Print

Emerald /GC Laboratory
Signature
Completed by: TERESAMcKINNEY



Date : 11/1/2019 11:41:14
AM

1 of 1

eo.emeraldtransformer.com/PCB/Print.aspx?batchid=13248&MinDispVal=1

1/1



Malaysia Non-Ferrous Metals Association

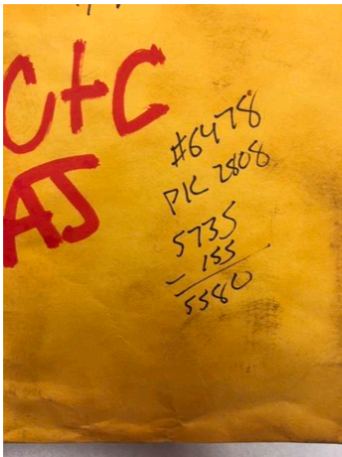
Attachment 4



Box Number 6462



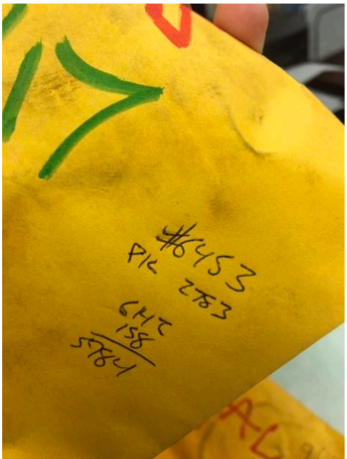
Barcodes for Box #6462



Box Number 6478



Barcodes for Box # 6478



Box Number 6453



Barcodes for Box # 6453



FLORIDA DEPARTMENT OF Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

August 14, 2019

Jessica Pennington
Florida Transformer LLC DBA Emerald Transformer
PO Box 507
Defuniak Springs, FL 32433

BE IT KNOWN THAT

Florida Transformer LLC DBA Emerald Transformer
4509 State Highway 83 N
Defuniak Springs, FL 32433- 3960

IS HEREBY REGISTERED AS A USED OIL

Transporter, Transfer Facility, Processor, Marketer, Filter Transporter

pursuant to Chapter 62-710, Florida Administrative Code (F.A.C.)

For regulatory guidance, go to:

http://www.dep.state.fl.us/waste/categories/used_oil/default.htm

The Department of Environmental Protection hereby issues

Registration Number **FLR000168203** on August 14, 2019

Transporter Type: **FH**

This registration will expire on 6/30/2020

This certificate documents receipt of your annual registration and annual report. It shall be displayed in a prominent place at your facility. This certificate and your cancelled check are your receipts.

A handwritten signature in cursive script that reads "Janet K. Ashwood".

Janet Ashwood
Environmental Consultant
Waste Compliance Assistance Program