	GUIDELINES				PREPARED BY	APPROVED BY
	DOC NO.: TRM-043				DKS	SKH
	REVISION NO.	03	DATE	30/12/2022		

ROHS, REACH and Asbestos Handling

1. PURPOSE:

- a. To provide a guideline on considering ROHS, REACH and asbestos handling in ACG Engineering and Manufacturing.
- b. An increasing awareness of Environment, Health and Safety (EHS) issues domestically and internationally has led to a corresponding increase in the quantity of related legislation and rigor with which the associated regulations are enforced. As many of the regulations pertain to specific materials and processes employed in the manufacture, rework, maintenance and repair of the AC generator, which will have an increasingly significant impact on the business.

2. SCOPE:


This specification applies exclusively to AC Generators/motors, for new design activity or major design modification activity. This specification provides the Engineering Requirements to ensure that the following materials are not specified for use in the design, manufacture, maintenance or repair of AC generators and disposal of listed hazardous substances under ROHS listed in 5.1.1.

Note: a) As per the directive 2011/65 EU, RoHS is applicable for all Electrical and Electronic Equipment (EEE), which is dependent on electric currents or electronic magnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and field and designed for use with a voltage rating not exceeding **1000 volts for alternating current and 1500 volts for direct current**.

RoHS is applicable for cable with rated voltage of below 250 V, that serve as a connection or an extension to connect EEE to the electrical outlet or to two or more EEE to each other.

- a) As per latest EU directive 2015/863, ROHS guidelines with added elements will be considered.
- b) **REACH** is applicable as per EU directive 1907/2006
- c) This guideline is also applicable to 100% restrictions of use of asbestos in the product.
- d) RoHS and REACH are from EU directive and applicable for all European Union countries and also as insisted by customers.

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3. REFERENCE: European Union (EU) directives and Customer input documents

3.1 Abbreviations commonly used in ROHS, REACH and asbestos

ROHS – Restrictions of hazardous substances

CAS - Chemical abstract Service (Assigned by American chemical society)

EINECS - European Inventory of Existing Commercial chemical Substances

REACH - Registration, Evaluation, Authorization and restrictions of chemicals

ECHA - European chemical agency

MSDS - Material Safety Data sheet

SVHC - Substance of very High concern

4. RESPONSIBILITY:

Marketing is responsible for collecting the customer requirements on ROHS, REACH and asbestos contents.


Engineering is responsible for updating and communicating the changes in the requirements and providing necessary data sheet.

Manufacturing and PP&MM is responsible for implementing these requirements

Quality Assurance is responsible to ensure in meeting the requirements

Also Refer in Clause -5.0

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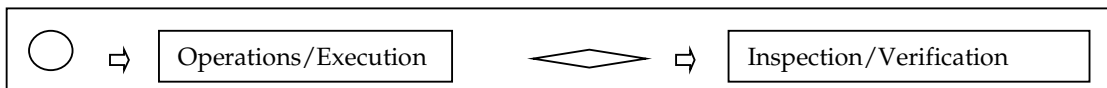
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5.0 PROCEDURE:

5.1 . A Process Flow of handling ROHS, REACH and asbestos at various stages is as below:


Flow	Activities	DOCUMENTS TO REFER	RESPONSIBLE FUNCTION
○	Customer Requirements	Customer PO/Purchase specification	Marketing
○	Engineering specification of RoHS requirements - Reviews	Bill Of material, Drawings and Specifications	Engineering
○	Supplier communication	PO, Training , Instructions, Audit Criteria on RoHS	PP & MM Supplier Quality development
◇	Verification Of RoHS materials/Asbestos	Test certificates, Independent Laboratory	Inward Material Inspection QA
○	Ensuring precautions on handling , storage and carry out activities	MSDS, Specifications, Work Instructions	Plant Engineering, Testing QA, Manufacturing and stores
○	Handling of Disposal Items	Disposal documents, PCB Directives	HR, Manufacturing, stores, Plant Engineering, Testing QA



NOTE:

- Apart from ROHS, latest Revisions of REACH directives, ECHA SVHC list (refer clause 5.1.2) and other regulatory requirements are applicable to above table
- Compliance declaration for REACH, RoHS from suppliers of reputed make items, brand items, chemicals and catalogue items needs to be addressed
- In case if any of the substances found at site, stock or in supply chain which meant to be supplied to European countries appropriate containment actions, safety measures and disposal decision to be taken by the respective stake holders
- Compliance declaration on REACH to customers shall be followed as insisted by customer
- If the Substances listed in latest SVHC list are marketed for the reason of product reliability requirement or any other reason, appropriate communication mechanism

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to customer with safety guidelines such as material data sheet shall be followed with reference to article 33 of the REACH 1907/2006

5.1.1 List of Substances under ROHS and other substances which needs attention as below, shall be revised from time to time based on national, international regulatory requirements and any other external requirements.

Sl	Restricted substances	Restriction level	Exemption and other notes as applicable to TDPS As per Directive 2011/65/EU, Annex III and other inputs; 2015/863
1	Lead	0.1 %	a. Lead in alloy of steel for machining purposes and galvanized steel up to 0.35% lead by weight b. Lead in high melting temperature type solders (i.e. lead based alloy containing 85% less by weight or more) and other exemptions for solders as applicable in Annexure III c. Copper alloy up to 4% and aluminum alloy 0.4% d. Electrical and electronics components containing lead in glass or ceramic other than dielectric ceramic in capacitors, eg., piezoelectronic devices....
2	Mercury	0.1%	Mercury in lamps as specified in Annex III From SLN 1 TO 5
3	Cadmium	0.01%	a. Cadmium and its compounds in one shot pellet type thermal cut-offs Cadmium and its compounds in electrical contracts (8a and 8b of Annex III)
4	Hexavalent chromium	0.1%	Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution
5	Polybrominated biphenyls (PBB)	0.1%	No other notes on exemption
6	Polybrominated Diphenyl ethers- (PBDE)	0.1%	No other notes on exemption
7	Bis (2-ethylhexyl) phthalate (BBP)	0.1 %	No specific exemption
8	Butyl benzyl phthalate (BBP)	0.1 %	No specific exemption
9	Dibutyl phthalate (DBP)	0.1 %	No specific exemption
10	Isobutyl phthalate (DIBP)	0.1 %	No specific exemption

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5.1.2 **REACH** : The List of items in REACH will vary and periodically updated based on EU directive revisions. REACH list is available in Annexes of REACH directive 1907/2006. SVHC List also to be referred in the case of compliance and testing requirements (ECHA Source: <http://echa.europa.eu/candidate-list-table>).

TDPS will follow below requirements to the minimum:

EU REACH 1907/2006: The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation requires the identification of Substances of Very High Concern (SVHC) contained in articles above the threshold 0.1% w/w manufactured and/or marketed in the EU (Legal Reference: Article 33 Section 1 of regulation EC 1907/2006). Please find the constantly updated list of SVHC here: [https://echa.europa.eu/de/candidate list-table](https://echa.europa.eu/de/candidate-list-table)

5.1.3 **Asbestos:** Following are prohibited in buying, manufacturing and placing in market


Asbestos means the following fibrous silicates:	
1. Asbestos actinolite	1. 77536-66-4(9)
2. Asbestos Grunerite(amosite)	2. 12171-73-5(10)
3. Asbestos anthophyllite	3. 77536-67-5(11)
4. Chrysotile	4. 12001-29-5(12)
5. Crocidolite	5. 12001-28-5(13)
6. Asbestos tremolite	6. 77536-68-6(14)

5.1.4: User may follow below table for ROHS from application point of view, which will be revised based on inputs as stated in 5.1.1:

5.1.5 The CAS No or EINECS No. or REACH No. will be maintained in the “Chemical used” data bank as provided in the MSDS or test report.

5.1.6: TDPS Bill of Material shall be the base for verifying the RoHS, REACH or asbestos compliance.

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5.1.7 Supplier compliance for these requirements will be determined by TDPS Cross functional team

5.1.8 Supplier PO will mention the requirements and the Guideline will be made available for access where applicable

5.1.9 In the case of Supplier compliance, TDPS has right to investigate the compliance through external Laboratory.

6.0. RECORDS and Documents: Supplier test reports, material data sheet, Drawings and specification as applicable, Engineering Guidelines TDM-05-0031, Compliance Declaration records

7.0 REVISION DETAILS:

Sl. No.	Rev. No.	Date	Brief Details of amendment	Basis for Amendment
1	00	02/Apr/2014	First release.	NA
2	01	03/May/2014	Related parts details added	Internal review
3	02	09/Dec/2022	New restricted substances updated as per latest EU directive 2015/863. Additional instructions on REACH references added. The guideline list from TDPS generic parts replaced by, Guideline on addressing through Bill of material	Internal review
4	03	30/Dec/2022	Additional instructions on revision notes added in table of Clause 5.1	Internal review

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