

**UTILISATION OF FLYASH FROM COAL OR LIGNITE BASED  
THERMAL POWER PLANTS**

**MINISTRY OF ENVIRONMENT AND FORESTS**

**NOTIFICATION**

New Delhi, the 14th September, 1999

**S.O.763(E)**- Whereas a draft notification containing rule (3) of rule 5 of the Environment (Protection) Rules, 1986 under the notification of the Government of India in the Ministry of Environment and Forests number S.O. 453(E) dated 22nd May, 1998 inviting objections and suggestions from all persons likely to be affected thereby, before the expiry of the period of sixty days from the date on which the copies of the Gazette of India containing the said notification are made available to the public;

And, whereas, copies of the said Gazette were made available to the public on the same date;

And, whereas, the objections and suggestions received from the public in respect of the said draft notification have been duly considered by the Central Government;

Whereas it is necessary to protect the environment, conserve top soil and prevent the dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land;

And, whereas, there is a need for restricting the excavation of top soil for manufacture of bricks and promoting the utilisation of fly ash in the manufacture of building materials and in construction activity within a specified radius of <sup>1</sup>[one hundred kilometers] from coal or lignite based thermal power plants;

And, Whereas, the Hon'ble High Court of Judicature, Delhi vide its order dated 25th August, 1999 in CWP No. 2145/99: Centre for Public Interest Litigation, Delhi v/s Union of India directed that the Central Government to publish the final notification in respect of fly ash on or before 26th October, 1999;

Now, therefore, in exercise of the powers conferred by sub-section (1), read with clause (v) of sub-section (2) of section 3 and section 5 of the Environment (Protection) Act, 1986 (29 of 1986); and in pursuance of the orders of the Hon'ble High Court, Delhi stated above, the Central Government hereby issues the following directions which shall come into force on the date of the publication of this notification, namely:-

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<sup>1</sup> Substituted by para 1 of the Notification S.O.979 (E), dated 27.8.2003.

**1. Use of fly ash, bottom ash or pond ash in the manufacture of bricks and other construction activities.-**

(1) No person shall within a radius of <sup>1</sup>[one hundred kilometers] from coal or lignite based thermal power plants, manufacture clay bricks or tiles or blocks for use in construction activities without mixing at least 25 per cent of ash (fly ash, bottom ash or pond ash) with soil on weight to weight basis.

<sup>2</sup>[(i) use of fly ash based products in construction activities];

<sup>3</sup>[1(A) Every construction agency engaged in the construction of buildings within a radius of hundred kilometres from a coal or lignite based thermal power plant shall use only fly ash based products for construction, such as cement or concrete, fly ash bricks or tiles or clay fly ash bricks, or bricks, blocks or tiles or cement fly ash bricks or blocks or similar products or a combination or aggregate of them, in every construction project.

1(B) The provisions of sub-paragraph (1A) shall be applicable to all construction agencies of Central or State or Local Government and private or public sector and it shall be the responsibility of the agencies either undertaking construction or approving the design or both to ensure compliance of the provisions of sub-paragraph (1A) and to submit annual returns to the concerned State Pollution Control Board or Pollution Control Committee, as applicable.]

<sup>4</sup>[1(C) Minimum fly ash content for building materials or products to qualify as "fly ash based products" category shall be given in the Table I below:

**TABLE I**

Serial No.	Building Materials or Products	Minimum % of fly ash by weight
(1)	(2)	(3)
1.	Fly ash bricks, blocks, blocks, tiles, etc. made with fly ash, lime, gypsum, sand, stone duct etc. (without clay).	50% of total input materials
2.	Paving blocks, paving tiles, checker tiles, mosaic tiles, roofing sheets, pre-cast elements, etc. wherein cement is used as binder.	Usage of PPC (IS-1489: Part-1) or PSC (IS-455) or 15% of OPC (IS-269/8112/12269) content.

<sup>1</sup> Substituted by para 2 (a) of the Notification S.O.979 (E), dated 27.8.2003.

<sup>2</sup> Substituted by para 2(a) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>3</sup> Substituted by para 2(b) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>4</sup> Inserted by para 2(c) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

3.	Cement	15% of total raw materials
4.	Clay based building materials such as bricks, blocks, tiles, etc.	25% of total raw materials
5.	Concrete, mortar and plaster	Usage of PPC (IS-1489: Part-1) or PSC (IS-455) or 15% of OPC (IS-269/8112/12269) content.]

<sup>1</sup>[2(D) The authority for ensuring the use of specified quantity of ash as per sub-paragraph <sup>3</sup>[(1C)] shall be the concerned Regional Officer of the State Pollution Control Board or the Pollution Control Committee, as the case may be.

1(E) The concerned State Government shall be the enforcing and monitoring authority for ensuring compliance of the provisions of sub-paragraph (1A)].

<sup>4</sup>[(3) In case of non-availability of fly ash from thermal power plants in sufficient quantities as certified by the said power plants, within 100 km. of the site, the stipulation under sub-paragraph (1A) shall be suitably modified (waived or relaxed) by the concerned State Government or Union Territory Government level monitoring committee mentioned elsewhere in this notification.

(3A) A decision on the application for manufacture of fly ash bricks, blocks and tiles and similar other fly ash based products shall be taken within thirty days from the date of receipt of the application by the concerned State Pollution Control Board or Pollution Control Committee.]

<sup>5</sup>[\*\*\*\*\* .....]

<sup>6</sup>[(4) Each coal or lignite based thermal power plant shall constitute a dispute settlement committee which shall include the General Manager of the thermal power plant and representative of the relevant Construction and fly ash Brick Manufacturing Industry Association or Body, as the case may be and such a

<sup>1</sup> Substituted by para 2(c), of the Notification S.O.979 (E), dated 27.8.2003.

<sup>2</sup> Number of sub-paragraph (2) substituted as paragraph (ID) by para 2(d) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>3</sup> Substituted by para 2(d) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>4</sup> Substituted by para 2(f) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>5</sup> Sub-paragraphs (3B), (3C), and (3D) omitted by para 2(g) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>6</sup> Sub-paragraphs (4) and (5) substituted by para 2(h) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

Committee shall ensure unhindered loading and transport of fly ash in an environmentally sound manner without any undue loss of time. An unresolved dispute shall be dealt with by the concerned State or Union territory Government level monitoring committee mentioned elsewhere in this notification.

- (5) No agency, person or organisation shall, within a radius of hundred kilometres of a thermal power plant undertake construction or approve design for construction of roads or flyover embankments with top soil; the guidelines or specifications issued by the Indian Road Congress (IRC) as contained in IRC specification No.SP:58 of 2001 as amended from time to time regarding use of fly ash shall be followed and any deviation from this direction can only be agreed to on technical reasons if the same is approved by Chief Engineer (Design) or Engineer –in – Chief of the concerned agency or organisation or on production of a certificate of “fly ash not available” from the thermal power plant(s) (TPPs) located within hundred kilometres of the site of construction and this certificate shall be provided by the TPP within two working days from the date of receipt of a request for fly ash, if fly ash is not available.]
- (6) Soil required for top or side covers of embankments of roads or flyovers shall be excavated from the embankment site and if it is not possible to do so, only the minimum quantity of soil required for the purpose shall be excavated from soil borrow area. In either case, the topsoil should be kept or stored separately. <sup>1</sup>[Voids created at soil borrow area shall be filled up with ash with proper compaction and covered with topsoil kept separately as above and this would be done as an integral part of embankment project.]
- <sup>2</sup>(7) No agency, person or organisation shall within radius of hundred kilometres of a coal or lignite based thermal power plant undertake or approve or allow reclamation and compaction of low lying areas with soil; only fly ash shall be used for compaction and reclamation and they shall also ensure that such reclamation and compaction is done in accordance with the specifications and guidelines laid down by the authorities mentioned in sub paragraph (1) of paragraph 3.
- (8) (i) No person or agency shall within fifty kilometres (by road) from coal or lignite based thermal power plants, undertake or approve stowing of mines without using at least 25% of fly ash on weight to weight basis, of the total stowing materials used and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

<sup>1</sup> Substituted by para 2(i) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>2</sup> Sub-paragraphs (7), (8), (9), (10) and (11) substituted by para 2(j) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of fly ash as may be decided by the expert committee referred in sub paragraph (10) for this purpose.

(ii) No person or agency shall within fifty kilometres (by road) from coal or lignite based thermal power plants, undertake or approve without using at least 25% of fly ash on volume to volume basis of the total materials used for external dump of overburden and same percentage in upper benches of back filling of opencast mines and this shall be done under the guidance of the Director General of Mines Safety (DGMS);

Provided that such thermal power stations shall facilitate the availability of required quality and quantity of fly ash as may be decided by the expert committee referred in sub-paragraph (10) for this purpose.

(9) The provisions contained in clause (i) and (ii) of sub paragraph (8) shall be applicable to all mine agencies under Government, public and private sector and to mines of all minerals or metals or items and it shall be the responsibility of agencies either undertaking or approving the external dump of overburden, backfilling or stowing of mine or all these activities to ensure compliance of provisions contained in clause (i) and (ii) of sub-paragraph (8) and to submit annual returns to the concerned State Pollution Control Board or Pollution Control Committee as applicable.

(10) The Ministry of Coal for this purpose shall constitute an expert committee comprising of representatives from Fly Ash Unit, Department of Science and Technology, Ministry of Science and Technology, Director General of Mines Safety(DGMS), Central Mines Planning and Design Institute Limited(CMPDIL), Ministry of Environment and Forests, Ministry of Power, Ministry of Mines and the Central Institute of Mining and Fuel Research(CIMFR), Dhanbad; the Committee shall also guide and advise the back filling or stowing in accordance with the provisions contained in sub-paragraphs (8) (i), (8) (ii) and (9), and specifications and guidelines laid down by the concerned authorities as mentioned in sub-paragraph(1) of paragraph 3.

(11) The concerned State Government or Union Territory Government shall be the enforcing and monitoring authority for ensuring compliance of the provisions of sub-paragraphs (8) (i) and (8) (ii).]

**2. <sup>1</sup>[Responsibilities of Thermal Power Plants].**

<sup>2</sup>[Every coal or lignite based thermal power plant shall take the following steps to ensure the utilization of ash generated by it, namely: -]

<sup>3</sup>[(1) All coal or lignite based thermal power stations would be free to sell fly ash to the user agencies subject to the following conditions, namely:-

(i) the pond ash should be made available free of any charge on "as is where basis" to manufacturers of bricks, blocks or tiles including clay fly ash product manufacturing unit(s), farmers, the Central and the State road construction agencies Public Works Department, and to agencies engaged in backfilling or stowing of mines.

(ii) at least 20% of dry ESP fly ash shall be made available free of charge to units manufacturing fly ash or clay - fly ash bricks, blocks and tiles on a priority basis over other users and if the demand from such agencies falls short of 20% of quantity, the balance quantity can be sold or disposed of by the power station as may be possible;

Provided that the fly ash obtained from the thermal power station should be utilized on for the purpose for which it was obtained from the thermal power station or plant failing which no fly ash shall be made available to the defaulting users.

(2) All coal and, or lignite based thermal power stations and, or expansion units in operation before the date of this notification are to achieve the target of fly ash utilization as per the TABLE-II given below:-

**TABLE-II**

Serial No.	Percentage Utilization of Fly Ash	Target Date
(1)	(2)	(3)
1.	At least 50% of fly ash generation	One year from the date of issue of this notification.
2.	At least 60% of fly ash generation	Two years from the date of issue of this notification.

<sup>1</sup> Substituted by para 3(a), of Notification S.O.No.979 (E), dated 27.8.2003.

<sup>2</sup> Substituted by para 3(b), *ibid.*

<sup>3</sup> Sub-paragraphs (1), (2) and (3) substituted by para 3(a) of Amendment Notification S.O.2804 (E), dated 3.11.2009.

3.	At least 75% of fly ash generation	Three years from the date of issue of this notification.
4.	At least 90% of fly ash generation	Four years from the date of issue this notification.
5.	100% of fly ash generation	Five years from the date of issue of this notification.

The unutilised fly ash in relation to the target during a year, if any, shall be utilized within next two years in addition to the targets stipulated for those years and the balance unutilised fly ash accumulated during first five years (the difference between the generation and the utilization target) shall be utilized progressively over next five years in addition to 100% utilization of current generation of fly ash.

(3) New coal and, or lignite based thermal power stations and, or expansion units commissioned after this notification to achieve the target of fly ash utilization as per the TABLE-III given below:-

**TABLE-III**

Serial No.	Fly Ash Utilization Level	Target Date
(1)	(2)	(3)
1.	At least 50% of fly ash generation	One year from the date of commissioning.
2.	At least 70% of fly ash generation	Two years from the date of commissioning.
3.	90% of fly ash generation	Three years from the date of commissioning.
4.	100% of fly ash generation	Four years from the date of commissioning.

The unutilised fly ash in relation to the target during a year, if any, shall be utilized within next two years in addition to the targets stipulated for these years and the balance unutilised fly ash accumulated during first four years (the difference between the generation and the utilization target) shall be utilized progressively over next five years in addition to 100% utilization of current generation of fly ash.]

- (4) All action plans prepared by coal or lignite based thermal power plants in accordance with sub-para (2) and (3) of para 2 of this notification, shall be submitted to the Central Pollution Control Board, concerned State Pollution Control Board/Committee and concerned regional office of the Ministry of Environment and Forests within a period of <sup>1</sup>[four months] from the date of publication of this notification.
- (5) The Central and State Government Agencies, the State Electricity Boards, the National Thermal Power Corporation and the management of the thermal power plants shall facilitate in making available land, electricity and water for manufacturing activities and provide access to the ash lifting area for promoting and setting up of ash-based production units in the proximity of the area where ash is generated by the power plant.
- <sup>2</sup>[(6) The amount collected from sale of fly ash and fly ash based products by coal and /or lignite based thermal power stations or their subsidiary or sister concern unit, as applicable should be kept in a separate account head and shall be utilised only for development of infrastructure or facilities, promotion and facilitation activities for use of fly ash until 100 percent fly ash utilization level is achieved, thereafter as long as 100% fly ash utilization levels are maintained, the thermal power station would be free to utilize the amount collected for other development programmes also and in case, there is a reduction in the fly ash utilization levels in the subsequent year(s), the use of financial return from fly ash shall get restricted to development of infrastructure or facilities and promotion or facilitation activities for fly ash utilization until 100 percent fly ash utilization level is again achieved and maintained.
- (7) Annual implementation report (for the period 1<sup>st</sup> April to 31<sup>st</sup> March) providing information about the compliance of provisions in this notification shall be submitted by the 30<sup>th</sup> day of April, every year to the Central Pollution Control Board, concerned State Pollution Control Board or Committee and the concerned Regional Office of the Ministry of Environment and Forests by the coal or lignite based thermal power plants, and also be made a part of the annual report of the thermal power plant as well as thermal power plant wise information be provided in the annual report of thermal power producing agency owning more than one thermal power plant.]

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<sup>1</sup> Substituted by para 3(b) of the Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>2</sup> Sub-paragraphs (6) and (7) substituted by para 3(c) of the Amendment Notification S.O.2804 (E), dated 3.11.2009.



**<sup>1</sup>[2A. Utilization of fly ash for reclamation of sea.]**

Subject to the rules made under the Environment (Protection) Act, 1986, (29 of 1986) reclamation of sea shall be a permissible method of utilization of fly ash.]

**3. Specifications for use of ash-based products.-**

- (1) Manufacture of ash-based products such as cement, concrete blocks, bricks, panels or any other material or the use of ash in construction activity such as in road laying, embankments or use as landfill to reclaim low lying areas including back filling in abandoned mines or pitheads or for any other use shall be carried out in accordance with specifications and guidelines laid down by the Bureau of Indian Standards, Indian Bureau of Mines, Indian Road Congress, Central Building Research Institute, Roorkee, Central Road Research Institute, New Delhi, Building Materials and Technology Promotion Council, New Delhi, Central Public Works Department, State Public Works Departments and other Central and State Government agencies.
- (2) The Central Public Works Department, Public Works Departments in the State/Union Territory Governments, Development Authorities, Housing Boards, National Highway Authority of India and other construction agencies including those in the private sector shall also prescribe the use of ash and ash-based products in their respective <sup>2</sup>[tender documents, schedules of specifications and construction applications including appropriate standards and codes of practice within a period of four months from the publication of this notification.]

<sup>3</sup>[(2A) Building construction agencies both in public and private shall prescribe the use of fly ash and fly ash based products in their respective tender documents, schedules of specifications and construction applications, including appropriate standards and codes of practice and make provisions for the use of fly ash and fly ash based bricks, blocks or tiles or aggregates of them in the schedule of approved materials and rates within a period of four months from the publication of this notification.]

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<sup>1</sup> Inserted by para 4 of the Notification S.O.No. 979(E), dated 27.8.2003.

<sup>2</sup> Substituted by para 4(a) of the Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>3</sup> Substituted by para 4(b) of the Amendment Notification S.O.2804 (E), dated 3.11.2009.

<sup>1</sup>[(2B) All agencies undertaking construction of roads or flyover bridges and reclamation and compaction of low lying areas, including Department of Road Transport and Highways (DORTH), National Highways Authority of India (NHAI), Central Public Works Department (CPWD), State Public Works Department and other State Government Agencies, shall within a period of four months from the publication of this notification:-

(a) make provisions in their tender documents, schedules of approved materials and rates as well as technical documents for implementation of this notification, including those relating to soil borrow area or pit as per sub-paragraph (6) of paragraph 1; and

(b) make necessary specifications or guidelines for road or fly over embankments that are not covered by the specifications laid down by the Indian Road Congress (IRC).

(3) All local authorities shall specify in their respective tender documents, building bye-laws and regulations, the use of fly ash and fly ash-based products and construction techniques in building materials, roads embankments or for any usage with immediate effect.

(4) The Central Electricity Authority and other approving agencies may permit the land area for emergency ash pond or fly ash storage area up to 50 hectares for a 500 MW unit, based on 45% ash content coal, or in the same proportion for units in other capacities taking into account the ash content in coal or lignite to be used.

(5) All Financial institutions and agencies which fund construction activities shall include a clause in their loan or grant document for compliance of the provisions of this notification.

(6) A Monitoring committee shall be constituted by the Central Government with Members from Ministry of Coal, Ministry of Mines, Ministry of Power, Central Pollution Control Board, Central Electricity Authority, Head Fly Ash Unit of Department of Science and Technology and Building Material Technology Promotion Council to monitor the implementation of the provisions of the notification and submit its recommendations or observations at least once in every six months to the Secretary, Ministry of Environment and Forests. Concerned Adviser or Joint Secretary in the Ministry of Environment and Forests will be the convener of this committee.

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<sup>1</sup> Sub-paragraphs (2B), (3), (4), (5), (6) and (7) substituted by para 4(c) of the Amendment Notification S.O.2804(E), dated 3.11.2009.

(7) For the purpose of monitoring the implementation of the provisions of this notification the State Governments or Union Territory Government shall constitute a Monitoring Committee within three months from the date of issue of this notification under the Chairmanship of Secretary, Department of Environment with representatives from Department of Power, Department of Mining, Road and Building Construction Department and State Pollution Control Board and this Committee would deal with any unresolved issue by Dispute Settlement Committee as prescribed in sub-paragraph (4) of paragraph 1, in addition to monitoring and facilitating implementation of this notification at the respective State Government or Union Territory level and this Committee would also empowered to suitably modify (waive or relax) the stipulation under sub-paragraph (1) in case of non-availability of fly ash in sufficient quantities from thermal power plant as certified by the said power plants and the Committee will meet at least once in every quarter.]

[F.No.9-8/2005-HSMD]

G.V.SUBRAHMANYUM, Scientist 'G'

**Foot Note:-** The principal notification was published in the Gazette of India, Part II, Section 3, Sub-section (ii) *vide* notification number S.O.763(E), dated the 14<sup>th</sup> September, 1999 and was amended *vide* notification number S.O.979 (E), dated the 27<sup>th</sup> August, 2003.