

Waste-to-Resources 2017

7th International Symposium MBT, MRF & Recycling

Resources and Energy from Waste
Towards Circular Economy and Zero Waste

www.waste-to-resources.eu

Conference and Exhibition

Patronage: Dr Barbara Hendricks
German Minister of Environment

16th – 18th of May 2017, Hanover, Germany
Additional introductory seminar 15th of May

Conference with simultaneous translation (session 1)
English – French – German

International Scientific Committee:

Prof. Dr. Morton Barlaz, North Carolina State University, USA, Prof. Dr. Pinjing He, Tongji University, China; Dr. Matthias Kuehle-Weidemeier, Wasteconsult international, Germany; Dr. Abdallah Nassour, University of Rostock, Germany; Prof. Dr. Michael Nelles, University of Rostock & German Biomass Research Center & REtech Managing Board, Germany

Programme, Registration, Arrival and Accommodation

Gold Sponsor



Silver Sponsor



Organisers



Waste-to-Resources 2017

The venue

Conference centre and hotel Wienecke XI



(C) Matthias Kühle-Weidemeier, 2010

The town

The town of Hanover has famous historical buildings, parks, museums, a beautiful Zoo and an international airport. It is located at the interchange of major European east-west and north-south motor- and railways.



(C) of the town photos: Hannover Marketing und Tourismus GmbH (HMTG)

By the way, there is a lot of nightlife in Hanover too!

Discover Germany

It is one hour and 40 minutes from Hanover to Berlin in the comfortable high speed ICE-Train (Inter-CityExpress). Depending on the track, ICE trains drive with a speed of up to 300km/h.



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Waste-to-Resources 2017

Conference and Exhibition

The previous conferences had delegates from up to 41 nations.



The conference is accompanied by a commercial exhibition. Take the chance to meet an exclusive international circle of potential customers. Further information including **Gold and Silver Sponsor packages** are available at www.waste-to-resources.eu/exhibition.html Don't hesitate to contact us!

Some of this year's or previous exhibitors:



Waste-to-Resources 2017

The day before the conference Introductory seminar to mechanical-biological treatment

15th of May 2017, 9.30 – 18:00. Presenter: Dr. Matthias Kuehle-Weidemeier, Wasteconsult
Seminar limited to 20 persons. Two coffee breaks and lunch included.

- 1. Introduction, what is MBT, targets, background**
- 2. MBT technologies and examples**
 - 2.1. Mechanical treatment**
 - 2.2. Biological treatment**
 - 2.2.1. Aerobic technologies**
 - 2.2.1.1. MBT prior to landfill
 - 2.2.1.2. Biological drying for refuse derived fuel (RDF) production
 - 2.2.2. Combined anaerobic-aerobic technologies**
 - 2.2.2.1. Partial flow dry digestion
 - 2.2.2.2. Full flow dry digestion
 - 2.2.2.3. Partial flow wet digestion
 - 2.2.2.4. Full flow wet digestion
 - 2.2.2.5. Percolation plants
 - 2.3. MBT related technologies**
 - 2.3.1. Wet mechanic separation technology**
 - 2.3.2. Mechanical-physical stabilisation**
- 3. Quality supervision of the major solid MBT output fractions and MBT process control**
 - 3.1. Taking representative samples, analytics, which parameters make sense?**
 - 3.1.1. Landfill material**
 - 3.1.2. RDF**
- 4. Control of Gaseous emissions**
 - 4.1. Emitted substances, variation of emissions during the process**
 - 4.2. Encapsulation**
 - 4.3. Air management**
 - 4.4. Biofilter**
 - 4.5. Regenerative thermal oxidation (RTO)**
- 5. Practical experience with MBT in Germany**
 - 5.1. History and legal background**
 - 5.2. Results of an evaluation of all German MBTs in 2007**
 - 5.3. Current situation, lessons learned**
- 6. Landfilling of MBT output**
- 7. Is agricultural application of MBT output a good solution?**
- 8. MBT compared to other technologies**
 - 8.1. Incineration**
 - 8.2. Bioreactor landfill**
- 9. Costs of MBT**
- 10. Adoption of MBT to the local situation in other regions and countries**

Waste-to-Resources 2017

Tuesday the 16th of May 2017 Session 1

9:45 – 11:00 Welcome

New framework conditions for recycling and waste management in the EU

1. The Circular Economy Package of the EU. *H. Maurer, EU-Commission, Brussels, Belgium*
 2. National implementation of the Circular Economy Package. *A. Jaron, German ministry of environment, Bonn, Germany*
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Coffee Break

11:30 – 13:30 **Resource and climate protection by circular economy**

4. Importance of the circular economy for the extraction of raw materials. *E. Weinberg, Commerzbank AG, Frankfurt, Germany*
 5. Climate protection by circular economy. *Y. Busch, Verein Klimaschutz durch Kreislaufwirtschaft e.V., Iserlohn, Germany*
 6. Decarbonization and energy generation can go hand in hand: The future is climate-positive! *M. Schmid; R. Fröhlich; R. Stucki, Ökozentrum, Langenbruck, Switzerland*
 7. Impact of the legal framework on the utilization of alternative fuels and biomass. *M. Mailänder, Luther Rechtsanwälte, Hamburg, Germany*
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Lunch

15:00 – 16:45 **Energy recovery**

- Impulse: Status of co-incineration in Germany. *S. Flamme, Fachhochschule Münster, S. Hams Gütegemeinschaft Sekundärbrennstoffe und Recyclingholz e. V. (BGS), Münster, Germany*
8. Co-incineration in coal-fired power plants. *S. Kappa, Lausitz Energie Kraftwerke AG, Cottbus, Germany*
 9. Co-incineration in cement plants. *M. Oerter, Forschungsinstitut der Zementindustrie GmbH, Düsseldorf, Germany*
 10. Solid recovered fuels: determination of the renewable content. *I. Zdanevitch, INERIS, Verneuil-en-Halatte, G. Remond, INDDIGO, Paris, G. Thonier, Deloitte Développement Durable, Neuilly-sur-Seine, E. Poncelet, ADEME, Angers, France*
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Coffee Break

17:15 – 19:15 **Recycling processes for plastics and mixed fractions 1**

12. Recycling of plastics - possibilities and limits. *M. Scriba, mtm plastics, Niedergebra, Germany*
13. Material recovery by conversion to oil. *N. Karpensky, C. Haptops, Recenso, Remscheid, Germany*
14. Renewable chemicals and biofuels from waste to close the loop of the circular economy. *T. Cesarek, Enerkem Inc., Montréal, Canada*

Landfill capacities

15. Landfill capacities in Germany. *H. Häming, InwesD, Cologne, Germany*
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19:45 Dinner

Waste-to-Resources 2017

Tuesday the 16th of May 2017 Session 2 (English only)

9:30 – 11:00 Welcome

Waste management and circular economy world wide

16. North America's First Independent Producer Responsibility waste diversion program (IPR) Will Create New Waste Diversion Opportunities. *J. D. Cocker, Baker & McKenzie LLP, Toronto, Ontario, Canada*
 17. Circular Economy in the USA: Market opportunities for European suppliers of recycling- and biogas-technology. *I. Freesen, Freesen & Partner GmbH, Uedem, Germany*
 19. MSW management in Estonia: The current situation and future potential for energy recovery from sustainable sources. *A. Clausen, RWTH Aachen University, Germany*
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Coffee Break

11:30 – 13:30 **Waste management in emerging countries**

20. Adapted selective waste collection concepts for developing and emerging countries. *W. Pfaff-Simoneit, KfW Development Bank, Frankfurt, Germany*
 21. Municipal solid waste management in India - Challenges and potentials. *C. Speier, Leibniz University of Hannover, Germany*
 22. Integrated solid waste management in Electronic City. *V. Vidyaranya, Earth One, Bangalore, India*
 23. Mechanical biological waste treatment plant for Bangalore west zone. *M. Kuehle-Weidemeier, Wasteconsult international, Langenhagen; K. Ketelsen, K. Kanning, iba GmbH, Hannover, Germany*
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Lunch

- 15:00 – 17:00
24. Impressions from research project on the climate protection potential of integrated waste management for Indian cities. *A. Schwetje, Umweltbundesamt, Dessau, Germany*
 25. Current status and perspectives of material specific treatment of biogenic waste in China. *M. Nelles, A. Lemke, A. Nassour, A. El Naas, Universität Rostock, Germany*
 26. Brazilian waste management and its symbiosis to the cement market. *C. Pereira, K. Fricke, TU Braunschweig, O. Kasper, Terra Melhor Ltda ME, São José dos Campos (SP), Brazil*
 27. Composting facility for Daressalaam. *F. Kölsch, Dr. Kölsch Geo- und Umwelttechnik GmbH, Braunschweig, S. Lübben, Stadtreinigung Hamburg, Germany*
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Coffee Break

17:30 – 19:00 **Utilization of organic waste and waste fractions 1**

28. Organic outputs from municipal solid waste: Soil creation for colliery spoil regeneration. *P. Gibbs, P. Whyatt, G. Roberts, M. Holt, 4R Group Ltd, Knottingley, UK*
 30. Autothermal fast pyrolysis of woody residues and wastes for the production of wood adhesives. *F. Berruti, Dongbing Li, C. Briens, Western University, London, Ontario, Canada*
 31. A study of the process of obtaining alcoholic fraction from the waste of food, agricultural and woodworking industry. *Musayev Marufdjan, Abdurakhmanov Akmal, Tashkent state technical University, Uzbekistan*
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19:45 Dinner

Waste-to-Resources 2017

Wednesday the 17th of May 2017, Session 1

9:00 – 11:00

Recycling processes for plastics, polymers and mixed fractions 2

32. Bio-based plastics in the post-consumer-recycling stream. *J. Bauer, KNOTEN WEIMAR International Transfer Centre Environmental Technology GmbH, Institute at the Bauhaus-Universität Weimar, Germany*

33. Mechanical Recycling of Polylactide Waste. *D. Bellušová, S. Mauer, H.-J. Endres, university of applied science Hanover, Germany*

34. Flexible process technology for the mechanical processing of complex material flows. *K. Bokelmann, T. Hartfeil, C. Gellermann, R. Stauber, Fraunhofer-Institut für Silicatforschung ISC, Alzenau, Germany*

Legal framework of the circular economy

35. European documents on best available techniques of waste treatment (BAT / BREF). Conclusion of the procedure and content of the documents. *W. Butz, Umweltbundesamt, Dessau, J. Ebbing, Institut für Entsorgung und Umwelttechnik (IFEU), Iserlohn, Germany*

Coffee Break

11:30 – 13:30

36. European Court of Justice and public procurement law – current case law. *N. Hildebrandt, WMRC Rechtsanwälte, Berlin, Germany*

37. What are the prospects for anaerobic digestion plants under the new German legal framework? *F. Strippel, Fachverband Biogas e.V., Freising, Germany*

38. Consequences of the German TA Luft 2017 and fertilizer ordinance on biological waste treatment plants. *C. Cuhls, university of applied science Magdeburg-Stendal, Magdeburg, Germany*

39. The impact of the POP regulation on European and German waste management, as a limiting factor of a functioning circular economy - examples of insulation materials, electrical appliances and other post-consumer waste. *B. Kummer, Kummer : Umweltkommunikation GmbH, Rheinbreitbach, Germany*

Lunch

15:00 – 17:00

General and operational aspects of the circular economy

40. Presentation of a method for forecasting waste quantities. *C. Böhm, B. Zwisele, ARGUS GmbH, Berlin*

41. The market for commercial waste in Germany until 2025. Disposal routes, trends and potentials. *J. Gatena, trend:research GmbH, Bremen, Germany*

42. Human resources development in waste management. *K. Gellenbeck, INFA GmbH, Ahlen, Germany*

43. "Fast-track notifications" - simplify cross-border waste transfer. *C. Slijkhuis, Müller-Guttenbrunn Gruppe, Amstetten, Austria*

Coffee Break

17:30 – 19:00

Approaches to the expansion of material recycling

44. Ways for increased material recycling of material flows from MBT. *M. Kuehle-Weidemeier, Wasteconsult international, Langenhagen, Germany*

45. Resource management through the use of regional residues. *T. Gruben, J. Martínez Gómez, university of applied science Trier / Umwelt-Campus Birkenfeld, Birkenfeld, Germany*

46. Repository private household - use unused potentials. *R. Brüning, Dr. Brüning Engineering UG, Brake, Germany*

19:45

Dinner

Wednesday the 17th of May 2017, Session 2 (English only)

9:00 – 11:00

Waste analytics

47. Challenges for an accurate characterization of waste. *O. Kasper, Terra Melhor Ltda ME, São José dos Campos (SP), Brazil, C. Pereira, TU Braunschweig, Germany*
 48. Characterization of MSW for defining MBT process for small and large municipalities in Quebec province, Canada. *Y. Bernard, M.-A. St-Pierre, M. Daigle, CRIQ (Centre de recherche industrielle du Québec), Canada*
 50. Current research projects and status of the development of fast in process analytics. *H. Itzel, Dr. HH. Itzel Management + Consulting GmbH, Munich, Germany*
 51. Seconds on-line *measurement* techniques for liquids, pastes, gases and vapors. *C. Buck, Dr. Buck Prozess- und Onlineanalytik, Darmstadt, Germany*
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Coffee Break

11:30 – 13:30

MBT technology

52. Development of an optimization model for the design of MBT processes under final product constraints. *C. Girard, L. Spreutels, R. Legros, Polytechnique Montreal, Canada*
53. Evaluation of moisture removal in bio-drying process with auto-controlled aeration system. *Jae-Ram Park, Dong-Hoon Lee, Sun-Bong Choi, Ruifeng Guo, Geun-Yong Ham, Sung-Jin Bae, University of Seoul, South Korea*

MBT technique presented by suppliers (short presentations)

54. MBT Jiangsu – Hightech waste processing for China. *A. Moeller, T. van Heeswijk, Redwave, Wetzlar, Germany*
 55. Flexible and compact system for the efficient treatment of organic waste for biogas production. *M. Liebich, Hugo Vogelsang Maschinenbau GmbH, Essen Old., Germany*
 56. Implementation of anaerobic treatment into Mechanical Biological Treatment Plants (MBT). *A. Huber, STRABAG Umwelttechnik GmbH, Dresden, Germany*
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Lunch

15:00 – 17:00

57. Concept for the monovarous fermentation of poultry manure and slaughterhouse waste. *A. Himmelstoss, AEV Energy, Dresden, Germany*
 58. Think twice before shredding! Bagsplitter for MSW. *R. Hungermann, Matthiessen Lagertechnik, Krefpe, Germany*
 59. Innovative conveying and steep conveyor technology. *M. Daut, B. Veltmann, VHV Anlagenbau GmbH, Hörstel, Germany*
 60. Drastic reduction of waste streams in glass recycling by the use of highly efficient recovery stages. *E. Lüth, Mogensen GmbH & Co. KG, Wedel, Germany*
 61. Material Recycling Facility Al Madinah. *T. Dippert, FHF Anlagentechnik, Bad Oeynhausen, Germany*
 62. Drying plants in recycling processes. *M. Trojosky, ALLGAIER Process Technology GmbH, Uhingen, Germany*
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Coffee Break

17:30 – 19:00

63. The Malta North Waste Treatment Plant (MNWTP) - Co-digestion of municipal solid waste, manure and chicken dung. *S. Schulte, O. Haub, O. Muck, BTA International GmbH, Pfaffenhofen, Germany, T. Faria, Efacec Engenharia e Sistemas, S.A., Porto Salvo, Portugal*
 64. Kompogas® Dry Anaerobic Digestion and BioMethan Gas Upgrading Technologies in modern MBTs to Produce Carbon-Neutral Vehicle Gas. *L. Heer, Hitachi Zosen Inova AG, Zurich, Switzerland.*
 65. Production of clean compost out of mixed MSW: A giant leap towards zero waste. *L. De Baere, W. Six, B. Mattheeuws, OWS nv, Gent, Belgium*
 66. The largest Thöni steel fermenter with a net fermentation volume of 2250 m³ in Gävle, Sweden. *R. Walk, Thöni Industriebetriebe GmbH, Telfs, Austria*
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19:45

Dinner

Waste-to-Resources 2017

Thursday the 18th of May 2017

8:30 – 10:30

Emission control

67. Effective odor elimination by the CSO Terminodour™ system. *J. Stockinger, CSO Technik Ltd., Bough Beech, Edenbridge, UK*
68. Combined separation of fine dust and pollutant gases during the energetic utilization of biogenic residues. *R. Bindig, C. Thiel, I. Hartmann, DBFZ Deutsches Biomasseforschungszentrum, Leipzig, F. Prill, H.-J. Schmid, S. Schiller, University of Paderborn, Germany*
69. Emission reduction in the energetic utilization of agricultural residues - combined reduction of PM and NOx. *M. König, I. Hartmann, M. Matthes, DBFZ, Leipzig*

Utilization of organic waste and waste fractions 2

70. Contrary management in biogenic waste. *M. Wellacher, Montanuniversität Leoben, Österreich, A. Kunter, Komptech GmbH, Frohnleiten, Austria*
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Coffee Break

11:00 – 13:00

71. Separation of contraries during the treatment of biowaste prior to fermentation. *W. Müller, Universität Innsbruck*
72. Exchange of experience to establish a system and an organization to ensure the quality of compost in Bulgaria. *M. Dollhofer, E. Zettl, BiPRO GmbH, Munich, Germany*
73. Waste stream treatment for obtaining safe reclaimed water and biomethane for transport sector to mitigate ghg emissions. *G. Sánchez Santos, Metropolitan Area of Barcelona, Spain*
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Lunch

14:15 – 16:15

Utilization of organic waste and waste fractions 3, Short Presentations

75. Production of activated carbons from biomass waste for environmental applications. *F. Berruti, A. Colomba, C. Briens, Western University, London, Ontario, Canada*
76. Preparation of new activated carbons from olive waste via sequential hydrothermal carbonization and activation with KOH and steam: Application of the methodology of response surfaces. *G. Enaime, A. Bacaoui, A. Yaacoubi, Cadi Ayyad University, Marrakech, Morocco, M. Wichern, M. Lubken, Ruhr-University Bochum, Germany*
77. High-quality biogenic silica from agricultural residues. *T. Schliermann, I. Hartmann, DBFZ, D. Schneider, S. Wassersleben, D. Enke, University of Leipzig, T. Jobst, Umwelt- und Gebäudetechnik 2000 GmbH, A. Lange, F. Roelofs, Chemiewerk Bad Köstritz GmbH, Germany*
78. Influence of different carbon sources including liquid additives from fermentation or composting on the purification of landfill leachate. *C. Steiner, S. Schröder, M. Balsam, C. Wolf, P. Beese-Vasbender, M. Denecke, A. Rehorek, TH Cologne, Forschungsgemeinschaft :metabolon, Lindlar, Germany*
79. Swiss joint research project brings new solutions for phosphor recycling from organic waste and residual waste. *K. Schu, EcoEnergy GmbH, Göttingen, Germany*
80. POP in waste management. Historical development and handling of organic pollutants. *R. Schu, EcoEnergy Gesellschaft für Energie- und Umwelttechnik mbH, Göttingen, Germany*
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Coffee Break

16:45 – 18:45

Utilization of mineral waste

81. Creation of a resource cadastre in the residential building sector. *Ö. Özdemir, K. Krause, A. Hafner, Ruhr-University Bochum, Germany*
82. Selective dismantling of buildings. Possibilities and limitations of the separation of materials and removal of pollutants. *H. Bogon, Consultant Engineer, Neustadt Rbge., Germany*
83. Recovery of critical raw materials from production residues of the special-purpose glass industry by gas-phase reaction. *G. Homm, K. Kazmierczak, C. Gellermann, R. Stauber, Fraunhofer-Institut für Silicatforschung (ISC), Alzenau, Germany*
84. Reuse of components and high-quality utilization of building materials. *A. Lieberum, Bundesverband bauteilnetz Deutschland e.V., Bremen, Germany*
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End of the Conference

Waste-to-Resources 2017

16-18 May: Posters (in English language)

Waste management without landfill and waste incineration.

K. Schu, R. Schu, EcoEnergy Gesellschaft für Energie- und Umwelttechnik mbH, Göttingen

Home composting of vegetable and fruit scraps.

H. Güven, Istanbul Technical University, Turkey

Supercritical water gasification in pilot-scale unit ZAHYKORMA. *Marek Svab¹, Eliska Purkarova²,
¹Dekonta, a.s., Dretovice, Czech Republic, ²University of Chemistry and Technology, Prague, Czech Republic*

Monitoring of biofilters in the context of Czech legislation. *K. Vondrakova¹, M. Sir¹, J. Sedlacek²
¹ Department of Environmental Chemistry, University of Chemistry and Technology Prague, Technicka 5, Praha 6, ² Puralab, s.r.o., Podnikatelska 552, 190 11, Praha 9 – Bechovice, Czech Rep.*

Further posters might be announced later.

Conference Registration:

Registration is done via the booking system Aloom. Prices and terms and conditions will be shown there. Use the early bird rates until the end of February!
Please click on the following link:

<https://tms.aloom.de/waste-to-resources-2017/>

Use the drop down button on the top right to select the language.

Legal conference organiser:

ASA GmbH, Westring 10, 59320 Ennigerloh, Tel. +49 2524 9307-180 • FAX +49 2524 9307-900 •
www.asa-ev.de

Organiser of the MBT introductory seminar:

Wasteconsult, Gartenstr. 4, 30851 Langenhagen, Germany
Fon +49 511 / 6558 1775 • FAX +49 511 / 6558 1774 • www.wasteconsult.de

Conference venue:

Wienecke XI. Hotel, Hildesheimer Str. 380, 30519 Hannover,
Fon +49 511 / 126 110 • FAX +49 511 / 12 611 511 • www.wienecke.de

Waste-to-Resources 2017

Accommodation:



Wienecke XI. Hotel, Hildesheimer Str. 380, 30519 Hannover,
Phone ++49 (0)511 / 126 110 • FAX ++49 (0)511 / 12 611 511 www.wienecke.de

The hotel holds a limited room contingent for the conference. With reference to the conference participation you can get a single room incl. breakfast for 155 €/night and a double for 185€/night incl. breakfast. The following hotels also have a contingent available (keyword Waste-to-Resources or waste):

Median Hotel Hannover Messe, Karlsruher Str. 8, 30519 Hannover, Tel: +49 (0) 5132 / 8290 333 • Fax +49 (0) 5132 / 8290 555, single/night: 109€ incl. breakfast, www.medianhotel-messe.de

ANDOR Hotel Plaza, Fernroderstr. 9, 30161 Hannover, Tel: +49 (0) 511 / 33 88-0 • Fax +49 (0) 511 / 33 88-188, single/night: 95€, breakfast + 12€/person, www.hotel-plaza-hannover.de

Hotel Kleefelder Hof, Kleestr. 3a, 30625 Hannover, Tel: +49 (0) 511 / 55 47 40-0 • Fax +49 (0) 511 / 55 47 40-77, single/night: 94,90 € incl. breakfast, www.kleefelderhof.com

Other hotels and information about Hanover can be found at www.hannover.de and hotels at www.hrs.com (for finding Hanover, type Hanover with double “n” (Hannover) or at the bottom of the arrival page of our website. <http://www.waste-to-resources.eu/venue.html> .

Arrival:

Flights to Hanover:

Hanover has an international airport, which is served by many airlines.

Non EU residents should check if they need a visa for Germany and apply for it as soon as possible! Travel health insurance is recommended!

Railway, Underground and Tram:

Starting from Hanover airport:



Take urban railway (“S-Bahn”) S5 direction Hameln and get off the train at Hanover main station (“Hauptbahnhof”). Go down 2 floors to the Underground station.

Starting from Hanover main station (DB):



Take Underground line 1 direction Laatzen/Sarstedt or Underground line 2 direction Rethen. De-board at the station Wiehbergstrasse



2 minutes footpath to hotel Wienecke XI.

By car:

Take Motorway A2 or A7 until interchange Hanover east (“Autobahnkreuz Hannover Ost”). Follow Motorway A7 heading south (if you are coming from the south, your description starts now):

Leave the Motorway A7 at exit Hannover – Anderten. Follow road B65 (“Suedschnellweg”) direction Hanover fair (“Messe”) until exit Doehren / Zentrum. Turn left at the first traffic light. Now you have reached the Hildesheimer Strasse. The conference Hotel “Wienecke XI.” is 2 km ahead (direction south) on the right side of the road.

You can get a detailed map of Hanover at www.stadtplandienst.de .