

LICENSING AND ENFORCEMENT DIVISION**PUBLIC cGMP INSPECTION REPORT OF PHARMACEUTICAL MANUFACTURER:****Sinovac Biotech Co. Ltd-Daxing****1.0 General information**

1.1 Name of Inspected company	Sinovac Biotech Co. Ltd-Daxing
1.2 Physical address	East side of 2F, Building 3, No. 21, Tianfu Street, Daxing Biomedicine Industrial Base of Zhongguancun Science Park, Daxing District, Beijing P. R. China
1.3 Corporate address	No. 39, Shangdi Xi Road, Haidian District Beijing, P. R. China
1.4 Summary of the main activities performed	Manufacture of Biologics
1.5 Scope of Inspection	Product- based inspection to verify compliance to cGMP guidelines for the manufacture of Biologics.
1.6 Purpose of Inspection	To ascertain cGMP compliance for the products which have been submitted and those yet to be for registration with the Medicines Control Authority of Zimbabwe (MCAZ).
1.7 Inspectors	Mr. Shamiso C. Shambira– Lead Inspector Mr. Tendai Samkange - Co-inspector
1.8 Date of Inspection	7 th July– 8 th July, 2025

2.0 Abbreviations List

Abbreviation	Meaning
AHU	Air Handling Unit
API	Active Pharmaceutical Ingredient
BMR	Batch Manufacturing Record
CAPA	Corrective and Preventive Action
CIP	Clean-In-Place
cGMP	Current Good Manufacturing Practice
COA	Certificate of Analysis
CNC	Controlled Non-Classified Area
EDI	Electrodeionization
EMS	Environmental Monitoring System

ERP	Enterprise Resource Planning
GMP	Good Manufacturing Practice
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation and Air Conditioning
MCAZ	Medicines Control Authority of Zimbabwe
MCD	Multi-Column Distillation
MOI	Multiplicity of Infection
OQ	Operational Qualification
PAO	Polyalphaolefin (aerosol for HEPA testing)
PQR / APQR	Product Quality Review / Annual Product Quality Review
QA	Quality Assurance
QC	Quality Control
QP	Qualified Person
RA	Regulatory Affairs
RO	Reverse Osmosis
SAP	Systems Applications and Products (ERP system)
SOP	Standard Operating Procedure
TOC	Total Organic Carbon
TRS	Technical Report Series
VHP	Vaporized Hydrogen Peroxide
WFI	Water for Injection
WHO TRS	World Health Organization

3.0 Summary

3.1 Brief summary about the facility

Sinovac Biotech Co. Ltd–Daxing, established in 2001 and located in the Daxing Biomedicine Industrial Base, Zhongguancun Science Park, Beijing, China, is a subsidiary of Sinovac Biotech Ltd engaged in the research, development, manufacture, and marketing of human vaccines and related biological products. The inspected Daxing facility includes an influenza vaccine bulk workshop, material warehouse, quality control laboratory, and associated support areas, with additional cold chain storage located at designated off-site facilities within the same industrial base.

3.2 General Information about the Company and the site

This was an initial inspection of the site by the Medicines Control Authority of Zimbabwe (MCAZ) Inspectorate, to support registration of products in Zimbabwe. The inspection was product-based and focused on the product(s) that were intended for the Zimbabwean market, with registration statuses at the time of the inspection as listed below.

Product	Strength	Pack size	Registration status
Influenza vaccine (Split virion), inactivated, (Anflu)	0.5ml pre-filled syringe, suspension for injection	Bulk Substance	Under evaluation for registration

Influenza vaccine (Split virion), inactivated, Quadrivalent	0.5ml pre-filled syringe, suspension for injection	Bulk Substance	Under evaluation for registration
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3.3 Areas inspected (*Not exhaustive*)

- **Quality Management:** Product Quality Review (PQR), Quality Risk Management, Deviation control, finished product and starting material batch release, Contract agreements and Supplier approval.
- **Materials Management:** Receipt, handling, quarantine, sampling, release, reject, temperature (and humidity) monitoring and dispensing.
- **Good Practices in Production:** Production areas, production equipment, documentation and instructions, sanitation cleaning and maintenance, batch records, calibration, contamination control, in process controls.
- **Quality Control:** Review of test procedures and specifications.
- **Utilities:** HVAC, Purified Water,
- **Environmental Monitoring:** EM programme
- **Equipment qualification** and preventive maintenance

3.4 Utilities

- a. Water Purification system
- b. HVAC system
- c. Compressed Air system

3.5 Documentation reviewed (*Not exhaustive*)

As stated in the final report.

4.0 Systems Summary

Pharmaceutical Quality System

A documented system for quality assurance was established, with procedures in place that cover key quality elements. The Quality Department was divided into QA and QC and separated from the Production Department. Operations were specified in written form.

Product Quality Review (PQR)

The SOP for product quality annual review was reviewed. The procedure provided for calculation of P_{pk}/C_{pk} values, with a minimum number of batches required. The 2024 PQR for Influenza vaccine was reviewed.

Change Control

The SOP for change control management was reviewed. Changes were classified into three

types, with risk assessment and effectiveness checks required before closure.

Recalls

The SOP for product recalls was reviewed. Recalls were classified into three levels. The mock recall report for 2024 was reviewed.

Good Manufacturing Practices for Pharmaceutical Products

Good manufacturing practices were generally implemented. Necessary human and physical resources, including adequate premises, equipment, and utilities, were provided to support the current operational level of manufacturing activities. The manufacturing processes followed procedures as defined and documented.

Sanitation and Hygiene

Premises and equipment were maintained at a satisfactory level of cleanliness at the time of inspection. Personal hygiene and sanitation appeared satisfactory. Areas were cleaned in accordance with an approved written programme.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Qualification and Validation

Validations and qualifications were performed according to the site policy and documented procedures. The validation master plan outlined requirements for performing validation related to processes, cleaning, analytical methods, and other areas.

HVAC Qualification

The 2025 HVAC Performance Qualification report was reviewed. HEPA filter integrity testing, air change rates, and room recovery met the specified acceptance criteria.

Effectiveness of Inactivation

The standard test procedure for effectiveness of inactivation was reviewed.

Cleaning Validation

The cleaning validation programme was reviewed. The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Complaints

An SOP for complaint handling was in place. The procedure classified complaints and required QA-led investigation with CAPA implementation.

Product Recalls

A procedure for product recalls was in place, with classification into levels based on patient safety impact. Mock recalls were conducted annually. The 2024 mock recall report was reviewed.

Contract Production, Analysis, and Other Activities

Finished product cold storage was contracted to an external provider. Quality agreements were in place. No other contracted production activities were identified for the inspected products.

Self-Inspection, Quality Audits and Suppliers' Audits and Approval

A supplier qualification procedure was in place. Training records for suppliers were reviewed. Internal audit procedures were documented.

Personnel

An organization chart was available with defined responsibilities. Key personnel had appropriate qualifications and experience. The Quality Head and Production Head were identified.

Training

A training procedure was in place. Training needs were identified by departments. Training effectiveness was evaluated.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Personal Hygiene

Written procedures for personal hygiene and gowning were in place. Entry and exit procedures for clean areas were documented. Personnel observed were appropriately gownned.

Premises

The facility comprised material warehouse, QC laboratory, production areas, and office space. The finished goods warehouse was located at a separate address and was inspected. Three cold rooms maintained at 2-8°C were inspected, with real-time temperature monitoring from mapped points.

The utilities supplying the facility were assessed, including Purified Water, Water for Injection, HVAC, and compressed air. The VHP fumigation procedure done for decontamination of premises was reviewed.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Equipment

The manufacturing site was equipped for influenza bulk vaccine production, including automatic harvesting machines, centrifuges, LAF units, and automatic inspection machines. Equipment status labels and calibration records were maintained.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Materials

Incoming materials were received, quarantined, sampled, and tested before release for use. Materials were stored under appropriate conditions and procured from approved suppliers. The

SOP for chicken embryo handover and disposal was reviewed.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Documentation

Sinovac has a documentation system, including electronic batch manufacturing records (eBMR). The quality assurance department was responsible for managing documents, including records. Batch manufacturing records, SOPs, validation protocols, and COAs were reviewed.

Good Practices in Production

The inspectors visited the production areas. No active production was ongoing at the time of inspection. The manufacturing process for influenza bulk vaccine was reviewed, including: chicken embryo receipt and storage, virus inoculation, incubation, cooling, virus harvesting, inactivation, primary purification, secondary purification, virus lysis, and final bulk storage.

Overall, the areas visited were maintained and tidy during the inspection. The manufacturing process followed procedures as defined and documented.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

Good Practices in Quality Control

The QC function was independent of production. The QC laboratory tested raw materials, in-process samples, and bulk product. The microbiology laboratory was segregated. COAs for influenza virus type B harvest and influenza vaccine bulk were reviewed.

The deficiencies raised in this section have been adequately addressed and will be verified during future inspections.

3.0 Observations

As stated in the final report.

4.0 Conclusion

Based on the areas inspected, the people met, and the documents reviewed including the observations listed in the Inspection Report, **Sinovac Biotech Co. Ltd-Daxing, located at East side of 2F, Building 3, No. 21, Tianfu Street, Daxing Biomedicine Industrial Base of Zhongguancun Science Park, Daxing District, Beijing P. R., China** was considered to be operating at an acceptable level of compliance with WHO cGMP guidelines for the manufacture of biologics (Influenza vaccine).

All the non-compliances observed during the inspection listed in the full report were addressed by the manufacturer to a satisfactory level prior to the publication of the MCAZ PIR.

The site will be reinspected **1 year** from the date of the last inspection in line with the risk-based reinspection frequency determination.

5.0 References

1. WHO good manufacturing practices for pharmaceutical products: main principles. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-eighth report. Geneva: World Health Organization; 2014: Annex 2 (WHO Technical Report Series, No. 986). Available at: <https://www.who.int/publications/m/item/trs986-annex2>
2. WHO good manufacturing practices: water for pharmaceutical use. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-fifth report. Geneva: World Health Organization; 2021: Annex 3 (WHO Technical Report Series, No. 1033). Available at: <https://www.who.int/publications/m/item/annex-3-trs-1033>
3. Guidelines on heating, ventilation and air-conditioning systems for non-sterile pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-second report. Geneva: World Health Organization; 2018: Annex 8 (WHO Technical Report Series, No. 1010). Available at: <https://www.who.int/docs/default-source/medicines/norms-and-standards/guidelines/production/trs1010-annex8-who-gmp-heating-ventilation-airconditioning.pdf>
4. Good manufacturing practices: guidelines on validation. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-third report. Geneva: World Health Organization; 2019: Annex 3 (WHO Technical Report Series, No. 1019). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
5. WHO good practices for pharmaceutical microbiology laboratories. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fifth report. Geneva: World Health Organization; 2011: Annex 2 (WHO Technical Report Series, No. 961). Available at: <https://www.who.int/publications/m/item/trs961-annex2>
6. Stability testing of active pharmaceutical ingredients and finished pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-second report. Geneva: World Health Organization; 2018: Annex 10 (WHO Technical Report Series, No. 1010). Available at: <https://www.who.int/publications/m/item/trs1010-annex10>
7. WHO guidelines on quality risk management. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-seventh report. Geneva: World Health Organization; 2013: Annex 2 (WHO Technical Report Series, No. 981). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
8. WHO guidelines for sampling of pharmaceutical products and related materials. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: thirty-ninth report. Geneva: World Health Organization; 2005: Annex 4 (WHO Technical Report Series, No. 929). Available at: https://fctc.who.int/publications/i/item/WHO_TRS_929
9. WHO good manufacturing practices for sterile pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-sixth report. Geneva: World Health Organization; 2022: Annex 2 (WHO Technical Report Series, No. 1044). Available at: <https://www.who.int/publications/m/item/trs1044-annex2>
10. Good practices for pharmaceutical quality control laboratories. In: WHO Expert

- Committee on Specifications for Pharmaceutical Preparations: forty-fourth report. Geneva: World Health Organization; 2010: Annex 1 (WHO Technical Report Series, No. 957). Available at: https://www.who.int/publications/i/item/WHO_TRS_957
11. WHO good manufacturing practices for biological products. In: WHO Expert Committee on Biological Standardization: sixty-sixth report. Geneva: World Health Organization; 2016: Annex 2 (WHO Technical Report Series, No. 999). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 12. Guideline on data integrity. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-fifth report. Geneva: World Health Organization; 2021: Annex 4 (WHO Technical Report Series, No. 1033). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 13. Good chromatography practices. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-fourth report. Geneva: World Health Organization; 2020: Annex 4 (WHO Technical Report Series, No. 1025). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 14. Good storage and distribution practices for medical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: fifty-fourth report. Geneva: World Health Organization; 2020: Annex 7 (WHO Technical Report Series, No. 1025). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 15. WHO good manufacturing practices for pharmaceutical products containing hazardous substances. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fourth report. Geneva: World Health Organization; 2010: Annex 3 (WHO Technical Report Series, No. 957). Available at: https://www.who.int/publications/i/item/WHO_TRS_957
 16. WHO guidelines on transfer of technology in pharmaceutical manufacturing. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fifth report. Geneva: World Health Organization; 2011: Annex 7 (WHO Technical Report Series, No. 961). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 17. Model guidance for the storage and transport of time- and temperature-sensitive pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fifth report. Geneva: World Health Organization; 2011: Annex 9 (WHO Technical Report Series, No. 961). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 18. General guidelines for the establishment, maintenance and distribution of chemical reference substances. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-first report. Geneva: World Health Organization; 2007: Annex 3 (WHO Technical Report Series, No. 943). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 19. WHO good distribution practices for pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fourth report. Geneva: World Health Organization; 2010: Annex 5 (WHO Technical Report Series,

- No. 957). Available at: https://www.who.int/publications/i/item/WHO_TRS_957
20. Guidelines for independent lot release of vaccines by regulatory authorities. In: WHO Expert Committee on Biological Standardization: sixty-first report. Geneva: World Health Organization; 2013: Annex 2 (WHO Technical Report Series, No. 978). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 21. Recommendations for the evaluation of animal cell cultures as substrates for the manufacture of biological medicinal products and for the characterization of cell banks. In: WHO Expert Committee on Biological Standardization: sixty-first report. Geneva: World Health Organization; 2013: Annex 3 (WHO Technical Report Series, No. 978). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>
 22. WHO good manufacturing practices for active pharmaceutical ingredients. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: forty-fourth report. Geneva: World Health Organization; 2010: Annex 2 (WHO Technical Report Series, No. 957). Available at: https://www.who.int/publications/i/item/WHO_TRS_957
 23. Guidelines on packaging for pharmaceutical products. In: WHO Expert Committee on Specifications for Pharmaceutical Preparations: thirty-sixth report. Geneva: World Health Organization; 2002: Annex 9 (WHO Technical Report Series, No. 902). Available at: <https://www.who.int/teams/health-product-and-policy-standards/standards-and-specifications/norms-and-standards-for-pharmaceuticals/guidelines>