

The new plastic balls



Questions and Answers

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v.2 / September 2015

Q How can I know if a ball is ITTF Approved and the type (material, seamless/with seam)?

- A
- The ITTF regularly updates the **List of ITTF Approved Balls**, which should be your **only official source of reference** and can be found on [ITTF.com>Equipment>Balls](https://www.ittf.com/Equipment/Balls).
 - A pdf printable version of this list is always available on the right side column of the link above.
 - All balls on the list have a note, indicating whether they are:
 - **Celluloid**
 - **Plastic with seam**
 - **Plastic seamless**
 - A new ball can enter the above mentioned list any time of the year.
 - If a ball is suspended for any reason, we give a 6-month notice for customers to change brand.

Q Which manufacturers already have ITTF Approved plastic balls? What type of ball (with or without seam)?

A 5 manufacturers

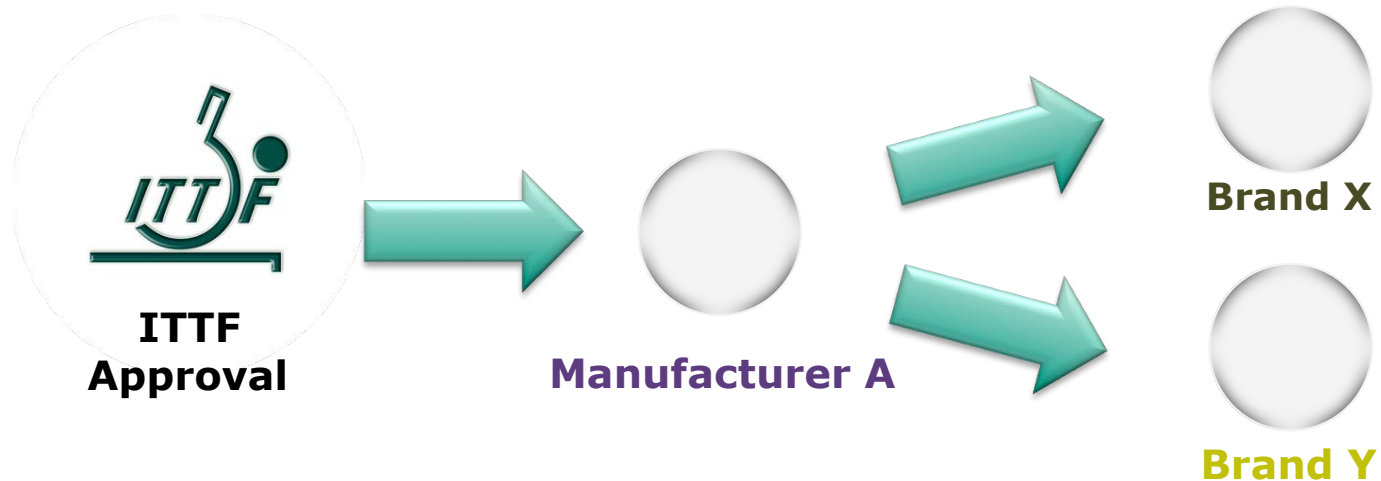
| Ball Manufacturer | Country * | Type | Date of approval |
|------------------------|-----------|-----------|------------------|
| Double Happiness / DHS | China | With seam | 24.01.14 |
| Double Fish | China | With seam | 24.01.14 |
| Xushaofa | China | Seamless | 24.01.14 |
| Nittaku | Japan | With seam | 25.03.14 |
| Weener / Tribax | Germany | With seam | 17.03.15 |

* *Company's Headquarter*

Q Then why on the list of ITTF Approved Balls there are more than 5 brands of new plastic balls?

A Simple explanation:

- Plastic balls of **different brands** can have the **same manufacturer**.
- They are just **branded differently** and carry the stamp of each company.
- The brand's owner is conducting **individual quality management, market distribution, service etc.**
- These balls are **approved under the simplified procedure**, guaranteeing the quality, compared to the source manufacturer and will be tested by ITTF randomly (procedure explained later – slide 11).



Q How do I distinguish a plastic from a celluloid ball, when in doubt?

A A simple observation of the stamp can give you this information. Just check for the below:

- All plastic balls are carrying „40+“ on the stamp.
- All celluloid balls are carrying „40“ (without +) on the stamp.



Plastic Ball



Celluloid Ball

- This is a **requirement for the stamp** but **not for the brand name** (the name which appears on the list of ITTF Approved Balls). For example: Brand **A 40+***** and Brand **B***** can both be plastic balls).

Q Will ITTF make plastic balls obligatory for all events and leagues in the world?

A NO. Facts are:

- ITTF will be using the plastic balls for **all World Title and ITTF Sanctioned events.**
- **All other events** (international, national etc.) are **free to choose the type of ball** they wish to use. It's up to each Organizer or National Association (NA) to choose.

Q What happens with the approval of celluloid balls? Will ITTF withdraw them from the list of ITTF Approved Balls?

A NO. Facts are:

- **ITTF is not intending to withdraw celluloid balls** from the list of ITTF Approved Balls, as long as manufacturers continue to produce them and renew the approval.
- ITTF is just expecting that celluloid balls will continuously disappear from the market without regulation, because their production, storage etc. will no longer be profitable compared to plastic balls.

Q Couldn't there be disadvantages in matches, when one event is played with celluloid, but another with plastic balls?

- A**
- Tolerances between celluloid balls are as big as between celluloid and plastic! **Uncertainty is the same as before.**
 - **There are no „new“ technical disadvantages.**
 - Example:

| Today | Future |
|---------------------------------|---------------------------------|
| Club A: Celluloid ball X | Club A: Celluloid Ball X |
| Weigh: 2.67 gr | Weigh: 2.67 gr |
| Hardness: 0.70mm (hard) | Hardness: 0.70 mm (hard) |
| Rebound: 259 mm | Rebound: 259 mm |
| | |
| Club B: Celluloid Ball Y | Club B: Plastic Ball Z |
| Weight: 2.77 gr | Weight: 2.75 gr |
| Hardness: 0.80 mm (soft) | Hardness: 0.81 mm (soft) |
| Rebound: 241 mm | Rebound: 241 mm |

Q In autumn 2013 I tested a plastic ball, of which the sound and properties were not good. Will the approved balls be different from prototypes?

- A**
- **Yes**, in some properties significantly!
 - **First balls approved: 24th January 2014.**
 - **The samples you tested maybe have been older samples:**
 - In 2013 we had up to 4 test runs per manufacturer, under the ITTF testing.
 - The ITTF did not compromise with the specifications therefore the manufacturers worked step by step towards these demands and **improved the first samples** to meet the ITTF requirements (e.g. rebound, hardness).
 - Also, the **sound improved** due to testers' feedbacks and there is no longer a significant sound difference from celluloid.
 - **The approved balls are representing significant improvements**, compared to all prior plastic balls. They are not comparable to balls available in autumn 2013.

Q Will there also be orange plastic balls?

A Possibly yes:

- **ITTF did not change the admitted colours** (matt white, matt orange).
- Due to the intensive research and testing needed, manufacturers have first concentrated on white balls. They may add orange when the time has come.

Q Which properties are tested for the approval and what are the differences between celluloid and plastic balls?

A Look at the table below for details

| Property | Tolerance range (single ball) | | | Remark |
|-------------------------|--|----------------------------------|------------------|--|
| | Celluloid | Plastic with seam | Plastic seamless | |
| Weight | 2.67 - 2.77 g | 2.67 - 2.77 g | 2.67 - 2.77 g | Plastic = Celluloid |
| Diameter | 39.5 - 40.5 | 40.0 - 40.6 | 40.0 - 40.6 | Plastic more precise, Max slightly bigger |
| Roundness ¹⁾ | < 0.35 mm | < 0.25 mm | < 0.25 mm | Plastic is better |
| Rebound ²⁾ | 240 - 260 mm | 240 - 260 mm | 240 - 260 mm | Plastic = Celluloid |
| Veer ³⁾ | Max. 2 out of 24 balls may fail >1x | | | Plastic = Celluloid |
| Hardness ⁴⁾ | P: 0.68 - 0.81 S: 0.72 - 0.83 | P: 0.68 - 0.81 S: 0.72 - 0.83 | R: 0.70 - 0.90 | Plastic with seam = Celluloid |
| Colour | Maximum deviation from a defined „white“-Value | | | Plastic = Celluloid |

1) Difference between max and min diameter measured on the same ball

2) When dropped onto a specific steel plate from 305 mm of height

3) Failure = exceeds 175 mm of deviation from center line within 1m of rolling; 3 times rolling per ball

4) Indentation of the ball at a force of 50 Newton (P: both poles, S: seam, R: random spots)

Q What is the specific material the new plastic balls are made of?

- A**
- There is **no specification for the exact material** to be used and also **not for the production process**.
 - As long as the materials are **not dangerous for health** and the **general advantage compared to celluloid is ensured** (for example, easier storage and transport due to lack of inflammability), manufacturers will test different production processes to end up with the best product.
 - **Material may be different** from manufacturer to manufacturer, provided that all required specifications for the ball are respected.
 - However, there is chemical proof obtained by ITTF that samples of new plastic balls **do not contain any celluloid**.

Q

How will ITTF ensure that the specifications, which were met in the approval test, will also be met in mass production? Will balls become even better after approval?

A

1. Quality control is done through the ITTF random testing:

- Balls will be bought directly in retail shops by ITTF, randomly and anonymously, and will be tested in an ITTF laboratory.
- Repeated failure to meet the tolerance ranges is resulting in suspension of the approval.
- Started autumn 2014 for plastic balls and is implemented on a 2-year basis (was always in place for celluloid balls).

2. Support

- ITTF is communicating lab results in detail to manufacturers.
- Critical values are explicitly pointed to, and recommendations are made accordingly.

3. Competition

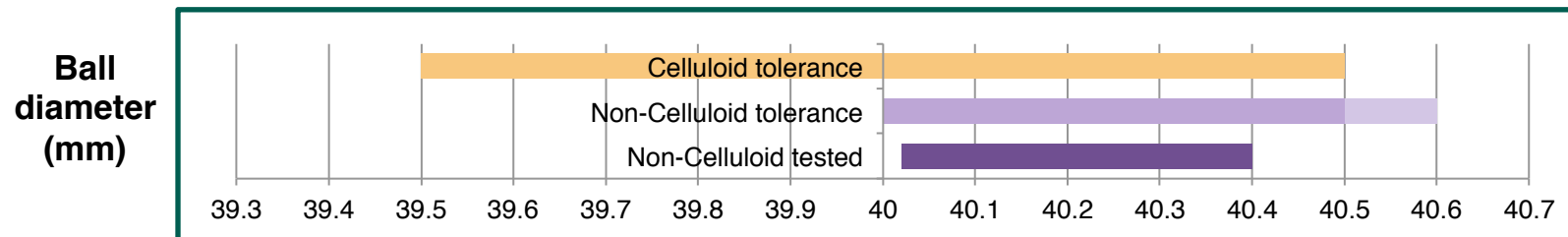
- Manufacturers interested to further optimize their product.
- Material research still „young“ therefore it will be continued.
- Lower ball quality = competitive disadvantage.

Q And what is the current status of this random testing ?

- A
- As of **September 30, 2015**:
 - On the list of ITTF Approved Balls, there are currently 40 plastic balls (= 50% of all brands). Of these 40:
 - 23 have been bought in retail shops in 12 different countries and submitted to the ITTF lab for testing.
 - The results of all 23 are already known, where there are failures and passes. In all cases, the results were communicated to the brands immediately and actions are being taken in case of failures.
 - Passed brands will be retested in the round 2017-2018, failed brands will be retested again in the round 2015-2016.
 - All remaining 17 brands will also still be bought and tested in the round 2015-2016. Same for any further brands to be approved.

Q Why did the ITTF change the diameter specification? Will the new ball fit all existing robots?

- ### A
- ITTF's goal: 40mm diameter → set symmetrical range
 - Previous balls testing showed:
 - Celluloid balls not 40.00 on average, rather smaller (motivation: production process, playing properties).
 - 1mm of tolerance is unnecessary, diameter is one of the best controllable properties during industrial production.
 - **The ITTF does not change any rule but improves the requirements:**
 - **Diameter tolerance** for single ball changes from 39.50-40.50mm to **40.00-40.60 mm**.
 - Real, measured diameters of the approved plastic balls are between 40.02 and 40.40 mm
 - This is within the maximum tolerance range of celluloid.
 - **Therefore, all ball robots of 40mm celluloid balls should be able to fit all approved plastic balls as well.**



Q Will ITTF disclose the manufacturer behind each brand, the material mixture used by each manufacturer and the results of the random testing?

A **No to all.** In order to support the supply chain, ITTF will not interfere with the suppliers' tasks more than necessary:

The material mixture is a business secret of the manufacturer and is not even controlled by ITTF, except for being free of celluloid. It cannot and must not be published.

Similarly, the selection of a manufacturer is part of the business strategy of a brand. Thus it is at the brand's discretion how to communicate it.

The results of random testing are not published in detail, as well as the results of approval testing never were, because this is the internal control process by ITTF and the only relevant information is whether a ball is / remains approved or not. (*"All results within the specifications are equal."*)

Q All fine, but **technical properties are not everything.** Important for me as a player are also **speed, spin and durability of the balls.**

A Establishing the technical properties is only the first of several steps.

The following two pages will show the **complete scheme of the plastic balls introduction process.**

Introducing the plastic balls combines technical quality assurance with the feedback of players and manufacturers.

Q Introduction workflow of plastic balls in 2014 (1)

A **Step 1:** Manufacturers must first be able to establish the **technical** properties of the ball. Before that, it is useless to test the **playing** properties of the ball, because it would be different by definition.



Step 2: Validation of the non-technical properties by the players:
Speed, spin, durability



„To achieve the best quality of the balls, it is a good idea to give more space to the manufacturers. Increasing the weight might help to improve the quality.“ (*Vladimir Samsonov, Chairman of the Athletes Commission*)

„If we temporarily adjust three tolerances, we can guarantee immediate mass production while research on materials will continue in order to establish the original tolerances with further improved playing properties.“ (Manufacturers' representatives)

Q Introduction workflow of plastic balls in 2014 (2)

A Players and manufacturers: „Minor temporary adjustment of tolerances is not a deficiency and is helping the introduction process a lot.“

Step 3: ITTF Board Of Directors decision, Tokyo, 2nd of May 2014: **Minor adjustment of tolerances** for weight, rebound and hardness, immediately until January 1st, 2016 (Updated Technical Leaflet T3)

Step 4: Mass production for use from July 1st, 2014, together with **ongoing research and optimization** of material.

Goal: Until January 1st, 2016, getting back to original tolerances. **Plastic balls with completed technical and playing properties.**

Q Why did ITTF then not just extend the deadline for the introduction of plastic balls? It was already delayed once, from 2012 to 2014. And why is it done at all?

- A**
- **Because a project without deadline will never be finished!**
 - Lack of economic motivation for manufacturers
 - Lack of testing motivation for players
 - Priority and attention of all stakeholders (associations, media, ...)
 - **Other than in 2012, the technical properties are now feasible!**
 - Every transition has its small troubles at the beginning.
 - Reacting to such troubles is the crucial point, and this is done: ITTF reacting to availability, answering any questions etc.
 - Conditions are equal for everybody.
 - **Producing plastic balls was inevitable: To ignore increasing regulatory restrictions for celluloid (production, import, storage, transport) would be irresponsible!**

Q Who is ITTF actually?

A ITTF:

- Is the **controlling** and **governing authority** for table tennis throughout the world.
- Consists of the **affiliated National Associations**.
- **Decision-making bodies** are the **AGM** (Annual General Meeting), **EC** (Executive Committee), **BoD** (Board of Directors), **DCC** (Development & Continental Council)
- **Committees and Commissions** (ie. Equipment Committee, Rules Committee, Umpires & Referees Committee, Athletes Commission etc.)
- The **Committees and Commissions** are **working out proceedings in contents** and taking care of **consulting** in their expert area.
- The **decision making bodies** are **deciding about proposed proceedings and are running ITTF** business politically, legally and financially.
- **The introduction and specifications of plastic balls was worked out by expert panels and decided by the AGM and the BoD.**

Q Where exactly do I find ... ?

A

| Item | Chapter in T3 |
|---|---------------------------|
| Tested sample sizes | B / Quantitative criteria |
| Test conditions (temperature, humidity) | B / Test Procedures |
| Test equipment and procedure | B / Test Procedures |
| Specifications (= limits / tolerances) | B.1 - B.12 |
| Regulations for stamp, branding and package | C.1 - C.3 |
| Date of production | C.4 |

All relevant information is documented in the ITTF Technical Leaflet T3, see [ITTF.com>Equipment>Balls](https://www.ittf.com/Equipment/Balls) > Technical Leaflet (PDF)

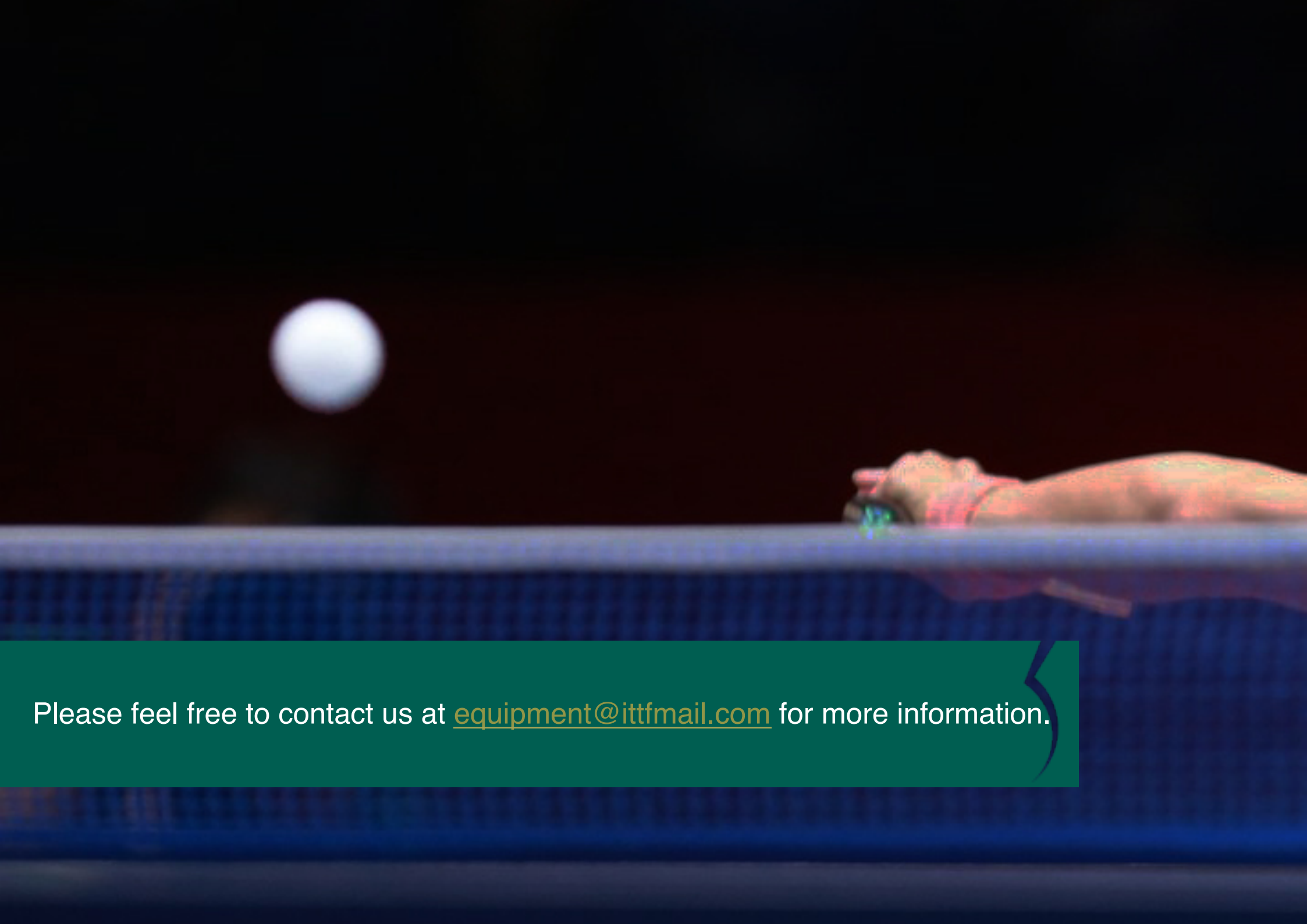


Definitions for terms used in this document

Plastic balls: described as balls which do not contain celluloid.

Manufacturers: described as the companies producing balls.

Brands: described as all different companies/brand names, under which balls are ITTF approved.



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